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# Railway Age

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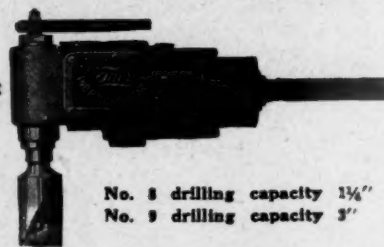
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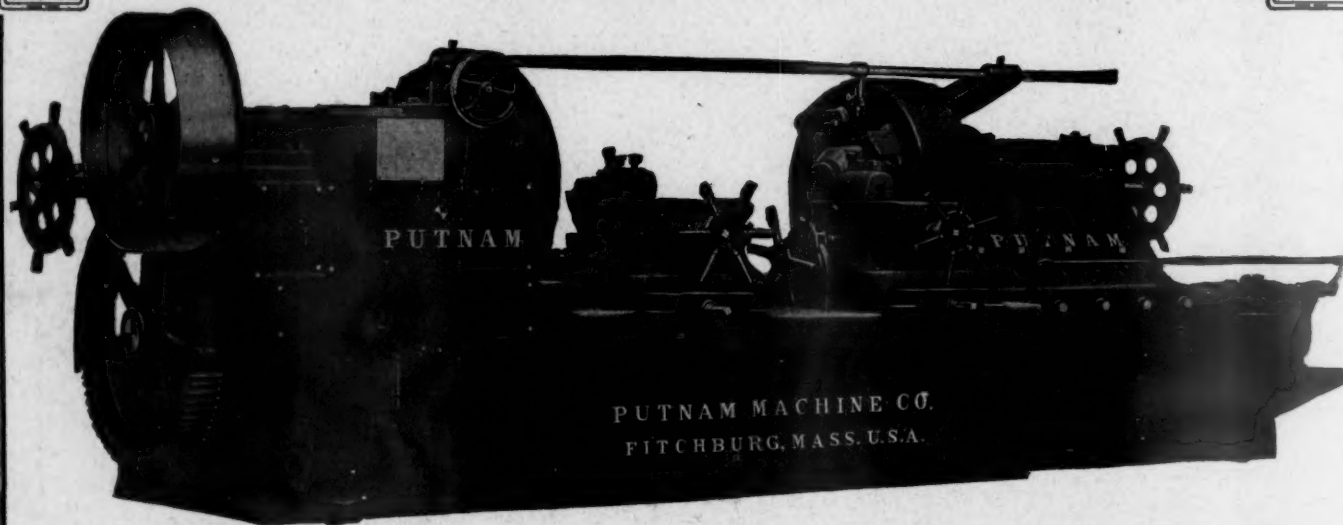
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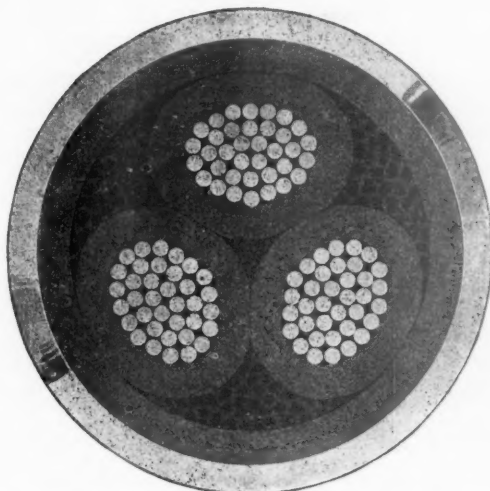
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Canadian Journalists in France Inspect the Canadian Forestry Detachment. Canadian Official Photograph.

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# EDITORIAL

## Railway Age

Mark Twain in "A Mediaeval Romance," the scene of which was laid in the year 1222 wrought the reader's feelings up

### Speaking of Resignations

to the highest pitch of excitement and then at the end of the fifth chapter he stopped short and said: "The truth is, I have got my hero (or heroine) into such a particularly close place that I do not see how I am ever going to get him (or her) out of it again, and therefore I will wash my hands of the whole business and leave that person to get out the best way that offers—or else stay there. I thought it was going to be easy enough to straighten out that little difficulty, but it looks different now."

With the relaxation of war-time severity the traveling public will again call upon the railroads to furnish for passengers

### The Two-Day Ticket Limit

everything that is pleasant and to take care to impose nothing that is unpleasant. The assembled railroad commissioners at Washington have already given notice that centralized strictness is exceedingly distasteful to them and their constituents, and their message to Mr. McAdoo, as it is read between the lines, seems to be that they intend to "move immediately upon his works" with all the vigor of Grant at Fort Donelson. One of the things which, according to the Springfield Republican, must be discontinued without delay is the two-day limit on all local tickets. Inasmuch as 99 per cent of such tickets, probably, are used within a very few hours after they are bought, it is not easy to see why so much prominence should be given to this point. One of the objects aimed at in the adoption of this rule was to prevent the dishonest use of a ticket for a second journey, in which trick many conductors have joined, defrauding their employers of thousands of dollars. The public will reply to this with the taunt "detect your thieves yourself; it is not our business." But that is easier said than done. Those railroads which have tried to introduce strictly business methods in the collection of tickets and fares on trains have met the opposition not only of innumerable obstinate passengers, but of state officers as well. However, the discouragement of dishonesty is a constant duty, and it may be that the Railroad Administration can contrive some new way to deal with this ancient problem.

In the period immediately preceding our entrance into the war deferred maintenance had necessarily accumulated. Dur-

### Take Up Deferred Maintenance

ing the last two seasons maintenance has been still further neglected because of conditions inherent to the period through which we were passing. Consequently the roads now require the expenditure of greatly increased sums for maintenance if they are to be brought back to the standards normally prevailing previous to 1914. For instance, it has been estimated by one student of the rail situation that the roads are over 10,000,000 tons in arrears in the renewal of rails. During the year now closing, the renewals have been less than one-half those of a normal year. The railways themselves must make good the deferred maintenance which accumulated

previous to the inauguration of federal control. Under the terms of the act providing for the taking over of the railroads by the government it is provided that the roads will be returned to their owners at the termination of the period of federal control in as good condition as when they were taken over. The government is, therefore, under agreement to make good all the deferred maintenance which has accumulated this year. Railway managements have been criticized in the past for their common practice of making improvements in times of general industrial activity and high prices and of retrenching during periods of industrial depression when labor and materials were cheaper. In other words, few managements had the ability or courage to spend during the periods of greatest economy because these were times of decreasing earnings. The large quantities of materials which the roads will require will, if ordered, do much to tide many industries over the period of transition until they can develop their peace time business and will provide employment for their men. Plans should be initiated at once for the railways to undertake at the earliest possible date the extensive program of reconstruction which the properties require.

Although only a short time has passed since the signing of the armistice, various events occurring in the material market

### A New Aspect on the Material Situation

indicate that the transfer of industrial activities from war work to peace pursuits will take place rapidly. Representatives of the steel trade have indicated their desire to discontinue the economic waste entailed in the manufacture of war materials after the need for them has disappeared. The government has also taken cognizance of the state of peace through the elimination of certain war work. Changes that will undoubtedly follow in due season will make vast quantities of steel and iron available for non-war purposes. Similar action has been undertaken with respect to lumber. The United States Shipping Board has announced that wood ship production will be curtailed within the limits of those ships now under construction or those contracted for by efficient yards. To offset these reductions in war work, the Priorities Committee has already taken action to decrease the restrictions on certain non-war work. It has provided for the removal of the restrictions on all railroad and public utilities construction and many other projects, while railway supplies appear in the list of undertakings to receive precedence in programs for increased production. These changes indicate clearly that the relation of the railroads to the steel market will soon bear a different aspect than it had during the war. It is true that the changes have only begun and that prices are still on a war basis, but a readjustment is bound to take place and with this prospect in view, railway men preparing plans for improvements to be made next season must study the effect which these changes will have on the work to be done. During the past season, work on bridges, buildings, water tanks, etc., was planned with the knowledge that steel was scarce and that in many cases its use was prohibitive; also that there were certain definite restrictions on the use of lumber. These conditions will not hold during the coming season, and while all materials should be considered with an open mind, it is necessary to scrutinize relationships carefully before arriving at a decision.

## An Opportunity for Patriotism

SHIPPERS, IF THEY WILL ONLY look at it in the right way, may experience the same patriotic thrill that accompanies the purchase of a Liberty Bond or a war savings stamp, or a contribution to the United War Work Campaign, whenever they pay an express rate after January 1, when the increased rates initiated by Director General McAdoo go into effect. Of course, they may feel, in much the same way, that they are contributing to one of the expenses of the government every time they pay a freight bill which has been increased 25 per cent, if they are numbered among the numerous shippers who, being shippers, naturally feel that freight rates are too high. But, as the result of a coincidence, there will be an especial glamor about paying the higher express charges, because it so happens that the \$12,000,000 by which the railroad revenues will be swelled by the increase in express rates announced in the afternoon papers of November 20, is precisely the amount by which it is estimated the railroad passenger revenues will be depleted by the order announced in the morning papers of the same day, that discharged soldiers returning to their homes shall be transported at a reduction of  $33\frac{1}{3}$  per cent from the regular passenger fare.

We understand the slogan of the next Liberty Loan campaign is to be, "To Bring the Boys Back Home." The slogan of the man who pays an express rate, therefore, may well be, "Bring the Boys All the Way Home," for he can easily convince himself that his money is paying the bill.

Director General McAdoo has done a handsome thing in helping to make it possible for our returning heroes, and those who would have been heroes if the necessity had not been suddenly removed, to travel from the point at which they leave the government service to their homes, within the allowance of  $3\frac{1}{2}$  cents a mile which another branch of the government has allowed them for that purpose, without being compelled to satisfy a soldier's appetite for food and other incidentals for  $\frac{1}{2}$  cent a mile. We also believe that any railroad officer would have been glad of an opportunity to do the same thing. The boys deserve it. The railroad officer might have issued the order for the reduction in rates as easily as could the director general of railroads. He could not so easily, however, pass around the privilege of paying for it. He would have to consult the Interstate Commerce Commission and 48 state commissions first. We trust the express shippers will appreciate their advantage over the freight shippers. Their dollars will stand in the same relation to those of the shippers by the slower method of transportation as the man in uniform to the man behind the man behind the gun. The glory goes with the uniform and the express shipper is helping to pay for that. The freight shipper is paying the high wages of the man who stayed at home and got less glory.

And thus is illustrated the wisdom of the scriptural saying that "it is more blessed to give than to receive." Mr. McAdoo doubtless knew, when he reduced the soldiers' rates, just where he would be able to recoup and if the express shipper or even the freight shipper has any doubts as to where he shall get his, let us whisper in the words of Clifford Thorne: "The Ultimate Consumer." The world having been made safe for democracy, why shouldn't democracy pay the bill?

These thoughts are inspired merely by a modest desire to suggest the proper philosophical viewpoint to the harassed shipper who, like many others, now finds himself obliged to deal in larger figures on both sides of his accounts than in the good old ante-bellum days when a dollar was just as large and round as today, but was of a less ethereal substance. A glance at the Interstate Commerce Commission's latest monthly report of railroad revenues and expenses will convince him that Mr. McAdoo does not *keep* the shippers' money; he merely keeps it in circulation, which is what the circulating medium is for.

## William G. McAdoo and the Administration's Railroad Policy

THE CLOSE OF THE WAR and the necessity for appointing a new director general of railroads to succeed William G. McAdoo affords an excellent opportunity for President Wilson to make known to the country in unmistakable terms what his policy toward the railroads and other public utilities now in the hands of the government is to be. Possibly he will do so in his message to Congress at the opening of the new session next week.

Before choosing a man for such an important position it will undoubtedly be necessary for the President to make up his own mind as to whether he wants some one to begin now, or soon, to carry on the process of readjustment which the federal control act plainly contemplates and for which it allowed a reasonable time, not to exceed 21 months, or whether he wants him to follow the plan which it was recently announced Mr. McAdoo intended to follow, of continuing the process of unification just as if government operation had been decided upon as a permanent policy. It would naturally be supposed that the President already has clear ideas on the subject, but what is needed is a definite public announcement of them.

It is scarcely necessary to say what we believe that policy should be. The strange thing is that there should be any doubt about it. But the policy which has been followed during the past year in the case of the railroads, and more recently in the case of the telegraph, telephone and cable lines, is so widely at variance with that which it had been announced would be followed, that some definite explanation of the intentions of the administration for the future is called for.

In the case of the railroads we were assured that the exercise of the President's authority to commandeer them was purely to meet the emergency conditions created by the war. The law specifically said so, and the President himself announced that nothing was to be altered or disturbed which it was not necessary to disturb. We recall that the administration draft of the federal control bill carefully omitted to confine its effect to the period of the war, but Congress corrected the omission and the President signed the bill with a time limit in it. Since that time a careful observer might have been excused for forming an opinion that almost everything in the railroad business was being disturbed which it was possible to disturb. We do not object to all the disturbances that have been made. Our only point is that the policy has been what might have been entirely proper if the government's control had been made permanent, but went rather farther than was suited to a temporary control.

In the case of the telegraph and telephone lines, spokesmen for the administration called for votes for the measure authorizing the President to take them over by declaring that it was not proposed to exercise the power unless some war necessity should demand it thereafter. No one was greatly surprised when it was learned soon after that the conditions were deemed sufficiently imperative to require that the lines be taken over, but there was a great deal of surprise when, the armistice having intervened before any effective measures had been taken, the unification of Western Union and Postal operations was undertaken, and the authority conferred by Congress was further taken advantage of to commandeer the ocean cable lines after the war had practically come to an end. The express business was also taken over after the armistice had been signed, but it had been so generally understood that the express company had virtually been taken over, and so many direct reasons appeared for the step, that there has been less comment on the possible indirect reasons than there has been in the case of the other utilities. The telegraph, telephone and cable lines were placed under the direction of the postmaster general, long



an out-and-out advocate of government ownership of those properties. The railroads were placed under the direction of a man who said he was not in favor of government ownership but whose actions since have been such as to create a strong impression that he was at least trying to bring about a plan of permanent government operation.

If such an impression does Mr. McAdoo an injustice it may be attributed to the fact that he has allowed it to spread uncontradicted, and while he has had plausible reasons for not announcing his ideas for the future disposition of the railways until he had had an opportunity to develop them after experience, he has never given any impression that he attached much importance to the changes which Congress put into the bill against his wishes for the purpose of confining its effect to the emergency. Possibly Mr. McAdoo, or Mr. McAdoo and the President, were so confident that they could demonstrate the superiority of government over private operation that they felt that they could afford to overlook the limitations inserted by Congress and to rely on the removal of the limitations before it would be necessary to consider them seriously. If such was the case, recent developments, such as the election of a Republican Congress, the resolution passed by the state commissioners at their Washington convention, and the resolution passed by the Industrial Traffic League, opposing government ownership and demanding the return of the roads, may have shaken their confidence.

However, whether or not this explanation of the situation be correct, we believe the time has come to give some effect to the section of the federal control act which expressly declares the law to be emergency legislation, and to that which provides for the termination of federal control within a reasonable time—not exceeding 21 months—from the proclamation of peace. The purpose for which the railroads were commandeered having been accomplished, from now on attention should be directed to putting the affairs of the railroads in such shape that they may be returned to their owners. We do not believe that this should be done at once by an order of relinquishment, because the relations of the corporations to the government are still in such a chaotic state that financial disaster might ensue. But these relations should from now on become simplified rather than further complicated, and at the same time consideration should be given to the legislation needed to improve the system of government regulation and to preserve the advantages of some of the reforms which the Railroad Administration has accomplished. What success the Railroad Administration has attained is attributable far more to its freedom from the restrictions imposed upon private management than to any superiority of government control over private management and we should endeavor to perpetuate rather the advantages than the disadvantages of the present system.

Mr. McAdoo, with the almost unlimited authority conferred upon him by law and with the assistance of some of the ablest railroad men that the former regime had developed, has undoubtedly accomplished with a considerable degree of success the primary object for which the railroads were placed under his charge—the operation of the railroads in such a way as fully to meet the demands of the war traffic. Very likely the Railroad Administration has been able to handle the war traffic more successfully than it could have been handled by the railroad companies under any plan of voluntary co-operation subject to the limitations which had been placed upon the private companies. To say this, however, is not to concede that the railroad companies might not have done just as well or better if allowed some of the freedom from restrictions which the Railroad Administration has enjoyed, nor does it eliminate the conclusion that the Railroad Administration might have done better had it not attempted to do more. Neither does it follow that the methods which were successful in time of war could be successfully followed in ordinary times.

The railroads under the direction of the Railroad Administration have handled a greater volume of traffic than the railroads under private management had ever handled, with very little increase in facilities, but at an enormously greater expense. The Railroad Administration has done even less than the railroads ever did in a year to increase the supply of cars and locomotives, partly because of war conditions and partly because instead of placing orders immediately it stopped to standardize first. If it has succeeded in handling a greater volume of traffic satisfactorily without much addition to the equipment, the methods by which it has done this are of considerable importance. While giving Mr. McAdoo credit for having the courage to do what the situation called for, it is well to recall that he did not originate the idea that operating efficiency could be increased by heavier car and train loading and by using cars as rolling stock instead of as warehouses. But where the Railroads' War Board could only appeal to the patriotism of shippers to load cars to capacity and to waste as little time as possible in loading and unloading them, Mr. McAdoo was able to embargo the shipper who did not load heavily and to impose a demurrage rate effective in the states as well as in interstate traffic high enough to secure the prompt release of cars.

A strong talking point for the Railroad Administration has been the improvement in the handling of the coal traffic. Up to November 16, the railroads this year handled 645,831 more cars of coal than during the corresponding period of last year, and there was less car shortage. This was due not to the fact that there were more coal cars, because most of the coal cars which the Railroad Administration ordered have not yet been built, but it is attributable mainly to the adoption of the zone system to avoid cross-hauling, which was repeatedly urged by the Railroads' War Board last year. The basis of the plan which was later adopted, and which, according to a recent statement of the Fuel Administration, has saved over 160,000,000 car miles, was worked out under the direction of the Railroads' War Board, but it had no power to make it effective.

Another point to which the press notices issued by the Railroad Administration have pointed with pride has been the improvement in the handling of export traffic, although the facts would seem to indicate that this has been the result of a greater degree of co-ordination between the government traffic officers, the Allies and the Shipping Board and the railroads, which the Railroads' War Board tried to bring about but was able only to recommend, rather than primarily a matter of railroad efficiency.

Mr. McAdoo also was able to pay railroad employees wages high enough to keep them on the job because he was given an emergency war power to raise freight and passenger rates sufficiently to do so. This has made him popular with the employees, some of whom are offering to contribute to pay him a salary to remain in office, but it has made him rather unpopular with shippers and we imagine that the man who succeeds him and has to maintain an equilibrium between the two factions during times of peace may have to spend more hours in his office.

In many respects the problem of the proper handling of the railroads in time of peace presents even greater difficulties than the railroad war problem, which is one of the reasons why its solution should be undertaken before it becomes more difficult. While there appears to be a widespread demand for the return of the roads to private management, we have heard of very little demand, except that of the state commissioners, for a return under the conditions which formerly prevailed. The railroads are not asking for the complete freedom from regulation which Mr. McAdoo has enjoyed. The representatives of the railroads that have expressed themselves on the subject recently have conceded the necessity for a very strong form of government regulation.

If a beginning could be made now toward working out



a plan for the future of the railroads we believe the chances for a satisfactory result would be much greater than if an effort is made to take advantage of the government's temporary control to "put over" any particular theory.

### What's to Become of the Railroads?

**W**ILLIAM G. McADOO, director general of the United States Railroad Administration and secretary of the treasury, resigns all of his offices; Samuel Rea advises caution in discussing the railroad situation; and the Association of Railroad Security Owners, quick on the trigger as always, gets to the newspapers first with a somewhat incoherent statement. In the meantime, there has been some very earnest and thoughtful study of this, the greatest single economic problem which faces the United States—the question of the future status of the railroads.

The facts stand out clearly and ruggedly enough. A successor will be appointed to Mr. McAdoo; a constructive policy for working out an organization for the railroads must be adopted. There will be more than one plan suggested. The government or rather the present administration will presumably have and eventually announce some definite plan. If the present administration is for government ownership, the sooner a definite announcement of this fact is made, the better for all concerned. Bankers, holders of railroad securities, insurance company and saving bank officers, manufacturers of railway supplies, and shippers, whose business is vitally affected by the policy of railroad rates and operation which is adopted, have a clear right to know how the administration stands on this question.

There will pretty surely be some advocates of a return to ownership and operation of the railroads by the existing corporations. The greatest railroad system in the world, our own, was built up under corporate ownership and management; no other system holds out the same incentive to betterment of service, economy in operation, progress in both the science of railroading and the design and development of plant and equipment.

But authority to fix income and expenses of any corporation or individual must carry with it the responsibility for the success of the corporation or individual. This was the fundamental defect in American regulation of railroads. Even given an Interstate Commerce Commission of infinitely greater capacity than the personnel of the commission has ever included and there would still be this fatal defect. If the commission were not responsible for results it would be economically wrong to give it final authority in the fixing of income and expenses. Will the public be willing to turn back the railroads to their owners and curtail the powers of the Interstate Commerce Commission? How about the local state authorities whose depredations on the roads were as harmful or more harmful than the honest but rather stupid mistakes of the Interstate Commerce Commission. A return to private ownership and initiative, competition and progress, will bring about a more rapid development, a better service, as low or lower rates, as any other solution of the railroad problem, but a big constructive program must be developed to bring this about.

Difficult as is the problem, (and to some it even appears insurmountable), there is, however, a very real question whether or not if such a solution of the problem is, in the long run, the most desirable and is economically sound where any other solution so far suggested is economically unsound it would not be better to face the difficulties, take the immediate losses and hardships, and attempt to do that thing which is right, even if it does not appear as the most expedient. At any rate, it can do no harm to face the facts squarely. Such a plan might entail the following: The Clayton act and the Sherman law should be repealed. The

Interstate Commerce Commission should take jurisdiction over the regulation of the railroads within the states and could do so, it would seem, under the Supreme Court's decision in the Shreveport case. A secretary of railroads or a secretary of transportation might be appointed and be a member of the President's cabinet. The railroads should be returned to the corporations that owned them in fully as good condition as when they were taken over. If there is to be a period of depression or at least of considerable recession of business, no very extensive new financing need be undertaken except by such companies as are financially able to raise new money. Some railroads would have to pass through a receivership probably, and there is the rub. It would take an immense amount of courage to carry out such a program as this, and a co-operation on the part of the railroad executives, bankers and politicians, that it will be extremely difficult to bring about.

In the discussions in the *Railway Age* and elsewhere of the problems of reconstruction and administration of the roads after the war, it has been assumed almost unanimously that it would be impossible to return to old conditions. Even E. P. Ripley of the Atchison, Topeka & Santa Fe, in his discussion of this subject in the Investments Section of the *Railway Age* of November 15, assumes that some new form of railroad administration will have to be devised. Those who have given the greatest study to this problem propose some form of regional operation of the railroads under private ownership, but with some form of partnership with the government, by which the government's credit may be used to help finance the railroads and in return that the government shall have a voice in the management of the roads. This does not mean necessarily the elimination of competition. It is true that in the plan outlined by F. J. Lisman and published in the Investments Section of the *Railway Age* of July 12, competition, except as between regions, was to be almost entirely eliminated, and it has been erroneously said that Frank Trumbull, chairman of the board of the Missouri, Kansas & Texas, and of the Chesapeake & Ohio, and first chairman of the Railway Executives Advisory Committee, also favors the elimination of competition. This is entirely incorrect. Whatever study of regional railroads Mr. Trumbull may have made, he is by no means of the opinion that competition must be eliminated. Competition as between different railroads would not be inconsistent with government participation in the profits of all companies and participation in the responsibility for the success of railroad operation as a whole. One of the greatest advantages of such a plan lies in the fact that government and private co-operation would be substituted for antagonism. To repeat, until the time that President Wilson took over the roads, the Interstate Commerce Commission and state commissions had the authority but not the responsibility for the broad policies of railroad management. In any of the plans which may have been formulated by members of the Railway Executives Advisory Committee, it is safe to say that the changing of this condition is a basic part of such plans.

The all important question is: can private credit be enlisted in the work of rehabilitation of the railroads, or must government co-operation be sought.

On December 4 the Railway Executives Advisory Committee will hold a meeting to discuss the present situation and the future of the railroads. It is to be hoped that at this meeting the discussion will be entirely frank, regardless of former prejudices and former rivalries, and that before the dangerous step of taking the government into partnership shall be decided upon, the possibility of private ownership, private operation, private responsibility and private authority, subject only to such government regulation as has been found necessary with other great industries will be carefully and courageously considered.

# Doings of the United States Railroad Administration

## McAdoo's Unexpected Resignation Brings Out Speculation as to His Successor and Government's Policy

WASHINGTON, D. C.

**D**IRECTOR GENERAL McADOO left Washington Saturday evening for an inspection trip over the railroad lines in the South, his final inspection trip as director general of railroads, which will complete a general survey of railroads in all parts of the country, as on previous trips he has recently travelled extensively over the western lines, the central and eastern lines and those in New England. Mr. McAdoo planned to be away from Washington about nine or ten days, returning before the President sails for Europe. He had a conference at Atlanta on Monday with Regional Director Winchell and other railroad officers of the Southern region, after which he went to Pensacola, where his son is at a naval aviation training station. Later he planned to go to New Orleans and possibly up to St. Louis for a further conference with railroad officers. The trip had been planned before his resignation.

Mr. McAdoo was accompanied by C. R. Gray, director of operation; John Skelton Williams, director of finance and purchases; Oscar A. Price, assistant to the director general, and for the first part of the trip W. S. Carter, director of labor.

A definite announcement by President Wilson or by Director General McAdoo as to the future policy of the Railroad Administration as to whether it proposes to continue along the lines of the past year or whether it will begin preparation for winding up its affairs is to be made within a few days. Members of the staff of the Railroad Administration have been working on the details of the announcement this week.

### McAdoo Resigns as Director General

William Gibbs McAdoo has resigned as director general of railroads, effective on January 1, 1919, or upon the appointment of his successor. He announced on November 22 his intention to retire to private life and, after a period of rest, to resume the practice of law in New York City. His resignation both as secretary of the treasury and as director general of railroads was tendered to President Wilson in a letter dated November 14 and was accepted by the President in a letter dated November 21, to become effective in the case of the cabinet office upon the appointment and qualification of his successor. The fact that a separate time is suggested for his retirement from the railroad office from that for his retirement from the treasury is taken as an indication that the new director general of railroads to be appointed will not combine the two offices.

Mr. McAdoo's reasons for the step, as given in his letter to the President, were that for almost six years he has worked incessantly under the pressure of great responsibilities, whose exactions have drawn heavily on his strength, and that the inadequate compensation allowed by law to cabinet officers and the very burdensome cost of living in Washington had so depleted his personal resources that he must, for the sake of his family, get back to private life to retrieve his personal fortune. He has received no compensation as director general of railroads and under the law could not be paid a salary for that office in addition to his salary as secretary, of \$12,000 a year, although he has fixed the salaries of members of his staff and of his federal managers at figures greatly in excess of his own and is paying his regional directors \$40,000 and \$50,000 a year. In his recent report to the President he showed that 136 officers of the regional and central administration were being paid salaries aggregating

\$1,642,300, which is an average of over \$12,000 a year. In announcing his resignation to the newspaper men, Mr. McAdoo declared that the reasons as set forth in the letter were his only reasons, that he had fully intended to retire to private life at the expiration of his first term as secretary of the treasury in March, 1917, but that he had remained in office because of the prospect of the country becoming involved in the war. Now that an armistice has been signed and peace is assured he felt at liberty to ask relief from his official responsibilities to look after his private affairs.

President Wilson, in accepting Mr. McAdoo's resignation, expressed deep regret and the highest appreciation of his "distinguished, disinterested and altogether admirable service" in both posts. Regarding the railroad office he said: "The whole country admires, I am sure, as I do, the skill and executive capacity with which you have handled the great and complex problem of the unified administration of the railways under the stress of war uses, and will regret, as I do, to see you leave that post just as the crest of its difficulty is passed."

Mr. McAdoo's announcement of his resignation was totally unexpected and even leading members of his railroad staff appear to have been kept in ignorance of the plan until after it had been given to the press. In spite of the strong reasons officially stated, a flood of speculation was aroused as to the possibility of other motives actuating the step and naturally many political considerations were advanced. The most common suggestion of this character was that Mr. McAdoo intends to become a candidate for President in 1920, and that he is now retiring, at the pinnacle of his success both in his handling of the country's finances and in his management of the railways under war conditions, before subjecting himself to any possibility of loss of prestige under the new conditions.

It was argued that while Mr. McAdoo as director general has undoubtedly made a success of the handling of war traffic, the large measure of credit which he has gained from that achievement might not fully survive the opposition and criticism which are regarded as an inevitable accompaniment of the process of readjustment, particularly with a Republican Congress, and that the prospects of a possibly thankless task are not such as to induce him to make further personal sacrifices. For instance, there have been many indications that a strong fight will be made to bring about the return of the roads to their owners within the 21 months' period provided by the law, and while Mr. McAdoo has not yet publicly stated his plans or ideas for the future of the railroads it is known that he was strongly opposed to this limitation on the time allowed him to work out his theories. It is also regarded as certain that an effort will be made to curtail the almost unlimited authority he has possessed in dealing with rates and there are difficulties on the horizon in dealing with the demands of labor for the maintenance or even further increase of the high wages he had granted during the past year without a control over the rates. At any rate, it is considered that Washington has nothing further to offer him short of the Presidency.

Naturally there has been much speculation as to whom the President will appoint as director general of railroads, particularly as it is considered that the appointment will give some indication as to whether the new man will be appointed for the purpose of preparing to restore the roads to their owners, or whether he will be expected to continue



the process of unification. The names most frequently mentioned are Walker D. Hines, assistant director general, and Charles A. Prouty, director of the Division of Public Service and Accounting. There has been an idea prevalent that Mr. McAdoo would some day relinquish the direction of the railroads to his assistant, but there is also a strong feeling that the President would not appoint a railroad man to the office.

Pending the President's announcement there have been some signs of a cessation of activity on the part of the Railroad Administration as far as new plans for the future are concerned, which have led to some speculation as to whether or not they indicated a plan for an early settlement of the relations of the administration with the corporations. For example, prospective orders for new equipment have been held up and activity in connection with changes in rates has been suspended, although only a week before Mr. McAdoo's announcement of his retirement the newspapers had been allowed to predict an active continuance of the work of completing the railroad unification.

#### Railroad Equipment Orders Held Up and Improvement Program Carried Over Into 1919

*[Since the following was received from Washington the builders have been notified to resume work on the orders for 600 standard locomotives mentioned as having been held up.—EDITOR.]*

The Railroad Administration has held up the order for 600 locomotives recently placed with the American Locomotive Company and the Lima Locomotive Works, for which the contract had not definitely been signed, and has asked the builders for a statement of expenses already incurred in connection with the tentative order. It is stated that the reason is to give the railroad corporations an opportunity to say whether they want the locomotives and will pay for them instead of endeavoring to force the railroads to purchase equipment, which was the policy of the Railroad Administration while the war was still in progress. The prospective orders for 2,000 hopper cars for the Virginian and for the 886 baggage cars for the Railroad Administration also has been held up, and it is understood that nothing will be done for the present regarding the expected orders for 375 passenger coaches and 129 combination passenger, baggage, mail and express cars, except that the work of completing the designs for the passenger cars will be taken up at next week's meeting of the Committee on Standard Appliances for Cars and Locomotives. Uncertainty as to what the future may develop as to the continuance of the Railroad Administration, the volume of traffic and the question of prices are also given as reasons.

Expenditures for equipment and improvements authorized for this year by the Railroad Administration but not completed, together with the additions and betterments which it is estimated must be authorized for next year, will constitute a program of capital expenditures for 1919 amounting to \$909,000,000, according to a statement authorized by Director General McAdoo, without reference to any additional orders for equipment.

The statement was issued by way of comment on the various suggestions being made that the Railroad Administration place large orders for equipment and other materials and supplies to help tide over the transition from war to peace conditions in the steel and allied industries. It was issued after the decision had been reached to hold up the new locomotive order, but no announcement was made of the latter action.

The Railroad Administration had previously let it be known, as reported in last week's issue, that neither it nor the railroad companies were anxious to place orders now at war prices, although it had been expected that the release of additional steel would give the administration an oppor-

tunity to go into the market with large orders. The 100,000 cars ordered in April consist of box, gondola and hopper cars, and none of the refrigerator, general service and stock cars, for which standard designs were prepared, have been ordered because the shortage of steel made it necessary to curtail materially the original program.

The statement is as follows:

"The equipment which has been ordered by the Railroad Administration and allocated to the railroads and not yet delivered is approximately 1,415 locomotives and 100,000 freight cars, representing a contract price of approximately \$366,333,355.

"As to immediate railroad additions and betterments (excluding equipment and new extensions), authority has been granted to the latest available date (November 10) for the railroads and also for the 108 terminal and switching companies other than the class 1 roads, aggregating \$533,860,502. Of this amount only \$179,995,902 had been expended up to September 30, 1918, and it appears probable that about one-half of the aggregate work thus authorized to be done in 1918 will not be done during this year.

"It is estimated that corresponding additions and betterments which must be authorized for the year 1919 will aggregate upwards of \$250,000,000, excluding equipment. It is also estimated that maintenance of way and structures will necessitate very substantial expenditures in order to bring the property up to standard.

"It would seem, therefore, that the following necessary expenditures remain to be made for this year and next, not including additional equipment:

Amounts already authorized for additions and betterments, way, structures, probably not yet expended.....	\$293,000,000
Equipment ordered and not yet delivered.....	366,000,000
Additions and betterments to way and structures to be authorized for 1919.....	250,000,000
Total .....	\$909,000,000

"It is evident, therefore, that a very substantial and absolutely necessary program will be carried forward by the Railroad Administration."

The figure given for the number of locomotives ordered does not include the 600 recently ordered from the American and Lima Companies, for which the specialties have not yet been placed. Bids on these had been asked and the locomotive specialty manufacturers were in Washington last week being interviewed by the purchasing committee, when on Thursday they were suddenly told without explanation that they could go home, and it was subsequently learned that the builders had been directed to hold up the orders and to render statement of how much they had expended on them. Of the locomotives originally ordered, about 500 have been delivered and of the 100,000 cars, about 5,000 have been delivered, much of the delay since the original delay incident to the process of standardization being attributed to the inability of the builders to obtain the necessary lumber. This is the reason for the issuance of the order by the War Industries Board last week, giving priority for orders for lumber for railroad purposes.

As the orders for the 100,000 cars was distributed among practically all the car building plants in the country it would seem that there was no object in placing additional car orders until more of the original order have been delivered. It has also been suggested that as the railroads succeeded in handling the war traffic with practically no new cars except the 42,000 which had been ordered prior to January 1, the administration might wait to see what is to be expected in the way of traffic under peace conditions before placing new orders. Another suggestion is that the price question is the important consideration.

The 1918 budget of improvements, only half of which are expected to be completed, will be further reduced by the discontinuance of work on projects undertaken directly for war purposes, such as trackage and other facilities at camps and



other centers of war activity. A survey of this class of work has been undertaken to find out how much of the work can be discontinued and how much is warranted by the prospects for the future.

### Volume of Traffic at Principal Terminals

Director General McAdoo has issued the following comparative statement showing the traffic handled by the railways under federal control at 25 of the more important railroad terminals of the country during the week ending October 21, 1918.

The statement in the form submitted comprises only a few of the more important cities of the country. Others will be added to the list as rapidly as arrangements can be made for the compilation of the figures. It is hoped that the information will be useful as a partial index of the country's business expressed in terms of cars and tons that will complement and supplement the statements issued by the Federal Reserve Board and the clearing houses of the United States in which the volume of business is reflected in terms of dollars.

The statement shows an increase of 5.25 per cent in the tonnage as against an increase of only .28 per cent in the number of cars used to carry the increased tonnage.

	Cars		Tons	
	1917	1918	1917	1918
Atlanta	2,581	2,149	66,227	58,354
Birmingham	5,401	5,092	224,384	222,313
Boston	8,644	8,216	120,837	151,062
Buffalo	8,923	7,811	309,042	294,602
Chicago	49,469	50,931	1,940,892	1,953,666
Charleston	1,083	1,431	22,592	35,257
Cleveland	10,510	9,794	371,531	400,963
Duluth & Superior	23,852	27,122	1,042,381	1,159,116
Duluth	1,217	1,152	26,061	20,450
Galveston	12,970	13,589	529,794	535,217
Hampton Roads	7,928	9,574	184,143	229,684
Kansas City	1,727	1,704	39,246	39,741
Los Angeles	26,990	26,427	666,533	689,244
New York	4,358	4,589	119,506	141,338
New Orleans	4,767	3,521	160,045	118,301
Omaha	2,175	2,200	55,671	57,041
Portland, Ore.	20,063	15,499	535,103	475,867
Philadelphia	8,450	7,849	271,265	297,941
Pittsburgh	11,091	12,469	359,150	411,125
St. Louis	2,579	3,104	72,332	79,642
Seattle	3,658	2,737	109,886	83,725
San Francisco	2,011	2,036	37,905	42,518
Savannah	1,434	1,710	40,720	62,877
Tacoma	13,121	13,631	346,585	402,923
Twin Cities	9,554	10,906	388,241	499,327
Toledo				
Total	244,556	245,243	8,040,072	8,462,294
Increase		687		422,222
		=0.28%		=5.25%
Average tons per car		32		35

### Many Car Thieves Convicted

The activities of the Claims and Property Protection Section in its war on car thieves are bearing fruit in various sections of the country.

Reports to the director general show that as a result of operations directed from Washington three car thieves, arrested in the act of tampering with a freight car in the New York Central yards at Buffalo, N. Y., were sentenced by Judge Hazel to long terms of imprisonment. Howard Brown and John Malloy, received five years each, while Joseph Torms got one year and six months. Brown was also fined \$1,000. For receiving stolen goods, Samuel Goldberg was sentenced by the same court to serve one year and six months in the penitentiary. At Buffalo there are now pending 69 indictments for this class of offenses, and many more are expected from the grand jury which is now in session.

At Pittsburgh, on November 20, Charles A. Fairfax, an employee of a transfer company, who secured various notices of freight arrivals and thus obtained possession of certain shipments, was sentenced to a year and a day in the penitentiary.

At New Jersey, Jacob Behrman, of Paterson, was convicted on November 19 of receiving 80 bundles of silk stolen from interstate shipments. Week before last there were 12 arrests for this class of offenses at Sandusky, Ohio, and 7

of the parties have confessed. A large amount of goods were recovered as the result and searches made incidental thereto.

Arrests made on November 22 in Washington by Inspector O'Dea of the Railroad Administration force, make a total of 38 in the past six weeks for railroad thieving at the Washington Terminal and for receiving stolen goods.

At Arcadia, California, on November 22 Dale Jones, a bandit, who was wanted in connection with the hold-up of an M. K. & T. train at Paola, Kansas, on July 10, last, was killed by a deputy sheriff who attempted to arrest him. In the gun battle that ensued, the deputy was killed as well as the wife of Jones, who accompanied him in his flight. Two other bandits, Roy Sherrill and Roy King, charged with participating in the hold-up, pleaded guilty and were sentenced to serve 25 years apiece in the Leavenworth penitentiary on November 15. Roy Lancaster, another member of the band sought by the federal authorities for this same "job," was killed at Kansas City, Mo., on September 24. The Paola hold-up was one of the boldest ever consummated in this country, and in the effort to run down the parties responsible there have been various gun battles in Kansas City, Colorado Springs and Denver. In these encounters more than a dozen people have been shot and three police officials killed.

### Additional Economies Reported

Figures made public by the director general show that economies amounting to \$25,286,207 per annum have been effected in three regions, the Southern, Southwestern and Northwestern, by unification of terminals and the cutting down of train service. In the Northwestern region \$25,229,352.45 a year has been saved, according to the report of R. H. Aishton, regional director, made up as follows:

Reduction in passenger train service, \$20,155,954; elimination of duplication in freight train service, \$1,338,726; unification of terminals at Chicago, \$940,765.90; unification of terminals at Minneapolis and St. Paul, \$465,653.60; unification of terminals at Omaha, \$212,970; unification of terminals in the Duluth-Superior district, \$126,376.00; unification of terminals in the St. Louis, East St. Louis district, \$437,466.45; consolidation of live stock agencies at Kansas City, \$12,948; economies in the handling of ore in the Lake Superior district, \$660,000; joint switching, \$489,618.30, and miscellaneous economies, \$388,874.20.

B. L. Winchell, regional director for the Southern region, reports that in addition to economies previously effected, a saving of \$17,000 a year has been brought about in the terminal arrangements and rearrangements at Louisville, Kentucky.

In the Southwestern region, B. F. Bush, the regional director, reports that through the consolidation of freight yards and depots there will be a total annual saving to the government of \$39,766 a year. Of this sum, the consolidation of the freight depot and freight yards of the Missouri, Kansas & Texas, with those of the Houston Belt & Terminal Company, wipes out an annual expenditure of \$30,000.

### Large Increase for Non-Telegrapher Station Agents

Director General McAdoo, on November 23, announced his award, effective October 1, with respect to rates of pay, rules for overtime and working conditions upon railroads under federal control for agents whose regular assignment does not require the sending or receiving of railroad train orders by telephone or telegraph. The order applies to approximately 2,500 employees.

There is established, first, a basic minimum rate of \$70 per month and to this basic minimum, and to all rates of \$70 and above in effect as of January 1, 1918, prior to the application of General Order No. 27, there is added \$25 per month. The only exceptions to this basis are in the case of those who are paid \$30 per month or less for special service, which takes only a portion of their time for outside employ-

ment or business, and also in the case of all agents who receive \$50 per month or less, to whom a straight advance of \$25 per month is granted.

Eight consecutive hours, exclusive of the meal hour, constitute a day's work. Overtime for the ninth and tenth hour of continuous service to be paid pro rata. All after the tenth hour is to be paid for at the rate of time and one-half. The usual provisions with respect to right of appeal in cases of individual grievances are established.

### Capital Expenditures of Switching and Terminal Companies

A report of the Division of Capital Expenditures of authorizations and expenditures in connection with work chargeable to capital account for 118 switching and terminal companies and the Pullman Car Lines shows expenditures up to September 30 amounting to \$12,275,656 charged to capital account and \$422,590 charged to operating expenses, as compared with total authorizations up to November 10 of \$54,454,247 chargeable to capital account, and \$2,259,427 chargeable to operating expenses. The total budget for 53 companies for 1918 as shown in the report, was \$17,612,882, and the additions to the budget amounted to \$1,166,344. Of the capital expenditures actually made to September 30, \$6,321,653 was for additions and betterments, \$2,926,842 was for equipment and \$3,027,161 was for construction of extensions, branches and other lines. The equipment column includes an item of \$2,314,022 for passenger train equipment, which doubtless represents principally the expenditure of the Pullman Company.

### Shop Employees' Hours Reduced

The emergency under which railroad employees in locomotive and car repair shops worked long hours during the war period having in some degree passed, Director General McAdoo, on November 22, issued directions under which the locomotive and car shop hours, as far as practicable, will be reduced to 9 hours per day, effective on November 25, and to 8 hours per day effective on December 9.

The director general sent the following telegram to all regional directors:

Last spring when the railroads were still struggling with congested traffic and weather conditions were very severe, the different mechanical organizations responded in a most gratifying way to the request that the men work a greater number of hours in the shops throughout the country than they had been accustomed to, or than some of their agreements with the railroads provided, in order to repair locomotives and cars for the prompt transportation of munitions of war and for food and other supplies for our army and navy abroad and the Allies. It is now possible, in view of the signing of the armistice, to anticipate an early return to normal conditions, and directions have been issued that wherever practicable the locomotive and car shop hours shall be reduced on November 25 to nine hours per day where greater number is now being worked and to basis of eight hours per day on December 9. The director general desires to express his deep appreciation of the patriotic response of the mechanical workmen on all railroads and his gratification that it is no longer necessary to call for number of hours of service heretofore required.

### Claim Circular No. 3

The Claims and Property Protection Section has issued Circular No. 3 prescribing regulations governing the investigation and settlement of claims for loss and damage to fruits and vegetables as follows:

It is the practice of some carriers to pay claims for damage on fresh fruits and vegetables when records show shipment was received at point of origin in apparent good condition, and damage by frost, deterioration or decay is found at time of delivery, even though investigation discloses no fault in the transportation service.

Other carriers decline to assume any liability when shipper's specific shipping instructions, as provided by tariff publications, have been fully complied with, and damage by frost, deterioration or decay is found to exist at the time of delivery, the damage being attributed to the inherent vice of the commodity or to some cause other than negligence of the carrier.

Such varying practices result in undue preference and unjust discrimination, and should not exist. Therefore, to establish uniform practices, the following rules are prescribed:

Rule 1.—Shippers of fresh fruits and vegetables must give carrier rea-

sonable advance notice of the commodity to be shipped and the kind of car required.

Rule 2.—Shippers must declare in writing to the initial carrier at loading station whether or not their shipments are tendered by them for transportation under refrigeration or ventilation, as provided in current tariff publications. Changes in refrigeration or ventilation instructions en route, given reasonably in advance to the carriers, may be made by the shipper, or the owner, or the duly authorized agent of either.

Rule 3.—The agent at the loading station must insert on the waybill the shipping instructions as to refrigeration or ventilation required by the shipment en route.

Rule 4.—The carriers shall keep accurate records of the services performed, so there will be no question as to the compliance with shipper's instructions. The information shown by the carrier's records shall be furnished to claimant in connection with claim when there is controversy regarding the service performed.

Rule 5.—Damage to fruits or vegetables caused by frost or freezing shall be investigated, and when it is found that such damage is due to unreasonable delay, failure to comply with shipper's instructions, or other negligence of the carriers, claims for damage due to such causes shall be paid.

Rule 6.—When the service and protection afforded by the carriers is in accordance with shipper's instructions, as provided in current tariff publications, and there is no evidence of negligence, unusual handling, or unreasonable delay, claims for damage shall not be paid. When carrier's handling is not in accordance with such instructions, and as a consequence loss or damage has occurred, or there is evidence of negligence, unusual handling, or unreasonable delay, and damage results therefrom, claim for loss occasioned by such causes shall be paid.

### Board of Adjustment No. 3

Membership of Board of Adjustment No. 3 created in accordance with the director general's General Order No. 53 to adjust controversies growing out of the interpretation of application of wage schedules applying to telegraphers, switchmen, clerks and maintenance of way employees, will be as follows: H. A. Kennedy, terminal manager, Twin Cities, chairman; S. N. Harrison, receiver, Wisconsin & Michigan; F. Hartenstien, superintendent, Washington Terminal; E. A. Gould, general superintendent, Missouri Pacific, representing the railroads, and George E. Kipp, Order of Railroad Telegraphers; W. A. Titus, Switchmen's Union of North America; Richard P. Dee, Order of Railway Clerks, and T. H. Gerrey, United Brotherhood of Maintenance of Way Employees, vice-chairman, representing the organizations.

### Director General Prohibits Christmas Presents

Director General McAdoo has issued a circular, No. 64, directed against the practice formerly common, but which has been considerably reduced in recent years, of giving Christmas presents to railroad men. The circular says:

"A practice has grown up by which officers and employees of railroads have been given Christmas and other holiday presents by shippers, and by business houses who furnish supplies and materials to railroads.

"While in many instances these presents do not represent material value, yet the practice is essentially objectionable, and it is the policy of the Railroad Administration that it should be discontinued entirely."

### Santa Fe Contract Signed

Before leaving on his southern trip, Director General McAdoo affixed his signature to the compensation contract with the Atchison, Topeka & Santa Fe, which has since been signed by President Ripley. It provides for an annual rate of compensation of \$42,885,310.80, the amount of the standard return as certified by the Interstate Commerce Commission without any extras. The contract covers also the following subsidiaries: Kansas Southwestern; Gulf, Colorado & Santa Fe; Panhandle & Santa Fe; Rio Grande, El Paso & Southwestern, and the Grand Canyon Railroad.

### Railroad Employees Willing to Pay McAdoo Salary

Director General McAdoo has received a telegram from a number of railroad employees at St. Louis saying that the railroad employees of St. Louis have pledged \$2,000 a month toward his salary and that they are opposed to his resignation and heartily in sympathy with his financial straits.



# Special Foundation Work for a Railroad Bridge

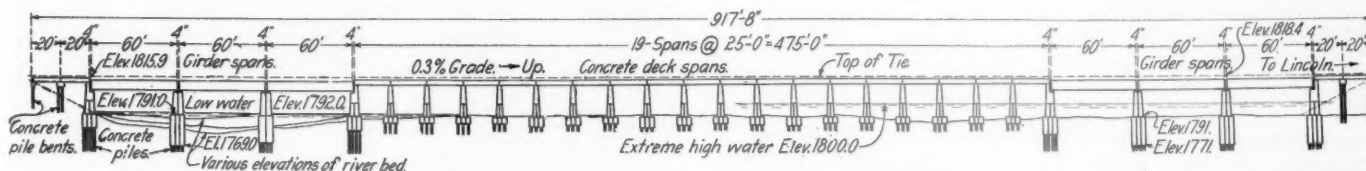
## New Burlington Structure Over the Platte River Is Supported Entirely on Concrete Piles

By J. H. Merriam

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THE CONSTRUCTION of a new bridge over the Platte river, near Grand Island, Neb., on the line of the Chicago, Burlington & Quincy between Lincoln, Neb., and Billings, Mont., involved the crossing of two channels, one near each river bank with a stretch of shallow water between them. This is a characteristic condition in the Platte river for almost its entire length

concrete piers supported on reinforced concrete piles. The total length of the bridge is 917 ft. It is 200 ft. shorter and 12 to 14 ft. higher than the pile trestle which it replaced. This additional height is for the purpose of reducing the grade on the east side of the river, this grade reduction including about five miles of line change with 250,000 cu. yd. of excavation and embankment. The entire change of line,

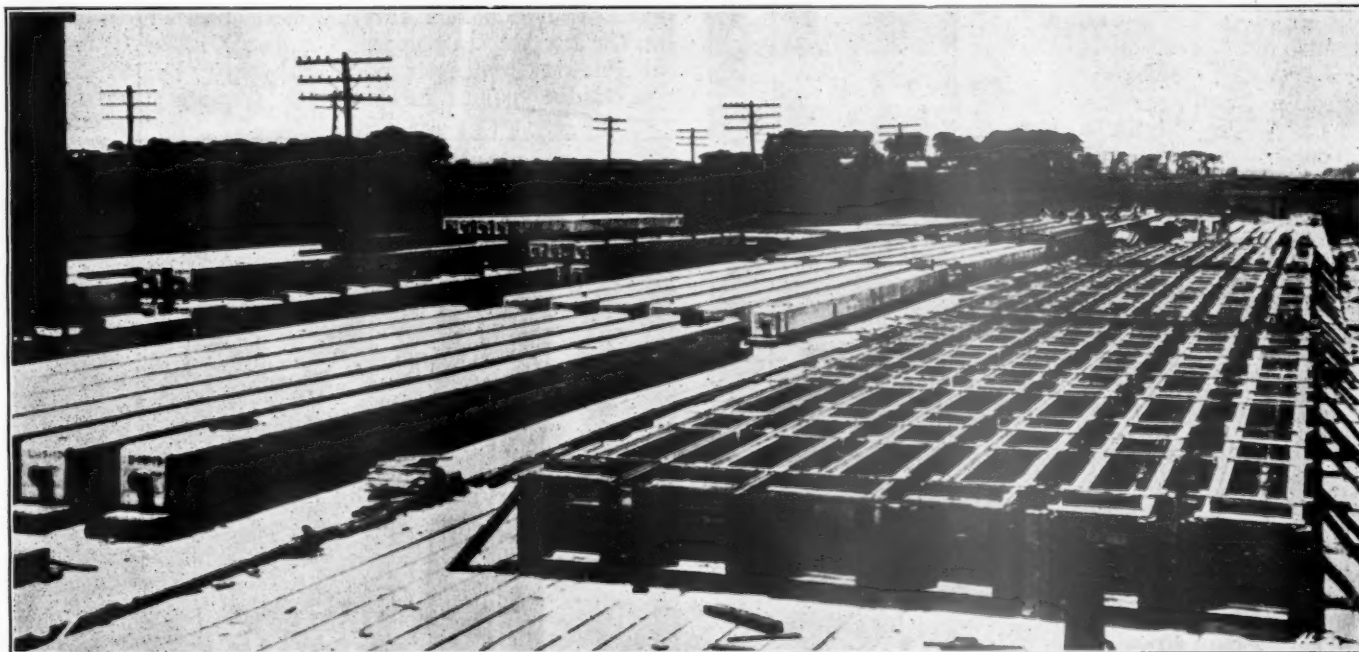


General Elevation of the Platte River Bridge

and from previous experience it has been found practicable to reduce the width of the river at the point where a permanent bridge is constructed. On the bridge in question the length of the crossing was reduced 200 ft. from that of the existing structure and the consequent deepening of the river bed together with a natural tendency to scour required the

together with the new bridge, will have grades not exceeding 0.3 per cent and will eliminate a 1 per cent grade.

The Platte river has a range at this point of about eight feet between extreme low water and high water. During high water, the bed of the stream scours to a depth of about four times the rise of the water. For instance, if the river raises



Pile Yard Showing Forms

use of deep foundations. These were placed on concrete piles and embodied a special form of construction.

The new bridge consists of three spans of 60-ft. deck girders over each of the channels with 19 spans of 25-ft. reinforced concrete trestle slabs over the shallow portion of the river between them and two approach spans of 20-ft. trestle slabs at each end of the bridge to serve as approaches. Except for two bents of reinforced concrete piles under each of the approaches, the substructure of the bridge consisted of

a foot, the bed of the stream goes down about four feet, and when this flood water goes down, the sand fills back to its normal condition. For this reason, the bridge was designed to take care of scour.

Owing to the heavy traffic over the existing bridge, it was necessary to construct a temporary bridge from which to conduct all construction operations. The new center line crosses the river about 18 ft. down stream from that of the old bridge, and the center line of the temporary or construc-



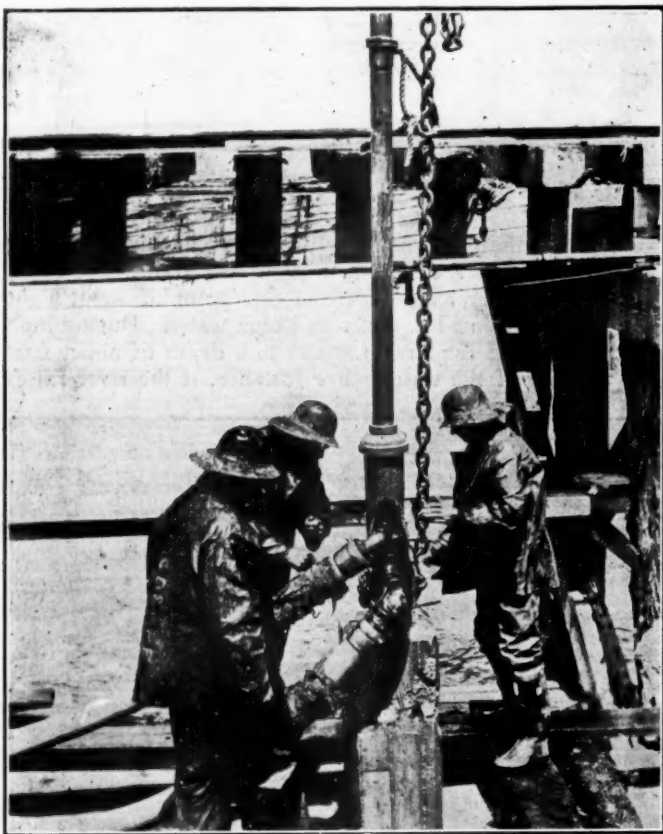
tion bridge was built 15 ft. down stream from the new alignment. The temporary bridge consisted of three-pile bents with six 8-ft. by 16-ft. stringers per span of 15 ft.

The concrete piling used in the foundation is known as the Bignell concrete jet piling, which had not before been used exclusively on a bridge of this size on the Burlington. They are 16 in. by 16 in. in section and 40 ft. long, made of reinforced concrete with a four-inch pipe or opening throughout the entire length. At the point of the pile, this is reduced to a one-inch opening by means of a special casting, but there are five small openings into the pipe from each side through which water may be discharged while sinking, in order to overcome side friction.

The entire 575 piles used on this work were made on the ground at the bridge site. These were made in batteries of six, an average of 18 to 24 being completed per 10-hr. day. The work included setting up the forms, placing the reinforcing and pipe openings, and the concreting. The concrete

and overcome side friction, so that the pile settles by its own weight. No driving is required in sinking the piles. The water pressure for the point of the jet was carried at about 175 lb. per sq. in. and that for the side openings was maintained at 100 to 125 lb.

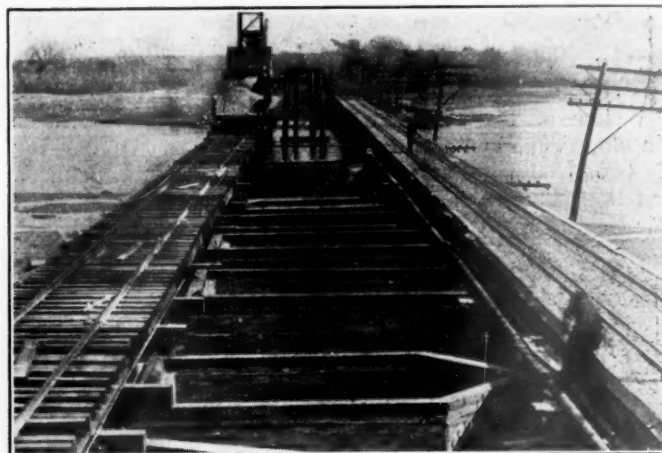
The piles were sunk their entire length through sand in 5 to 15 min. When clay was encountered it sometimes required 50 to 60 min. per pile. In the case of this bridge, a



Hose Attachment on the Top of a Pile

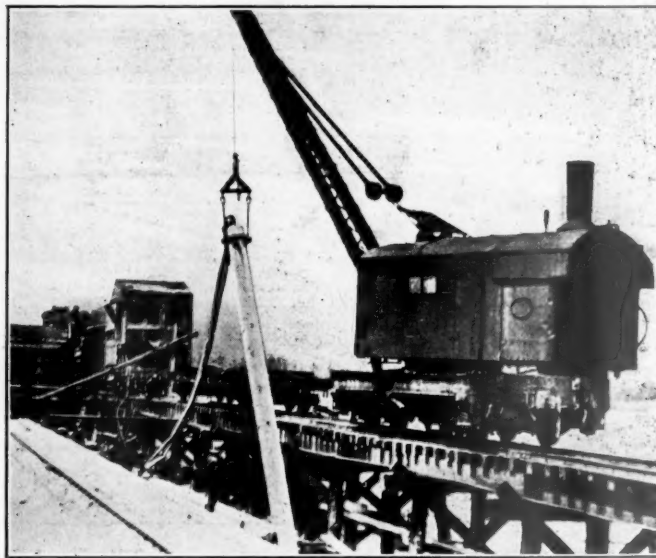
was mixed by a plant erected on a flat car which moved along a track parallel to the forms and was spouted direct into the forms. The side forms were removed in 24 hr. and the piles were allowed to cure from three to seven days before they were removed to a storage yard. In no case were they used earlier than 60 days after concreting.

Before sinking these piles, they were fitted with a two-inch pipe which was placed inside the four-inch pipe and fitted into the nozzle at the lower end. The connection at the top of the pile was made up of standard pipe fittings so as to apply water through two lines of 3½-in. hose, one of which furnishes water inside the two-inch pipe for discharge from the jet at the point of the pile, while the other supplies water to the annular space outside the two-inch pipe and inside the four-inch pipe, which in turn feeds the small opening along the sides of the piling. The jet at the point is for the purpose of digging or loosening the material ahead of the pile while the side openings keep the material moving up



Concrete Coffers Dams in Place Ready for Sinking. Old Bridge on the Right. Temporary Construction Bridge on the Left

stratum of clay was encountered at a depth of 27 ft. which varied from 3 to 13 ft. in thickness. From 6 to 13 piles were sunk per 10-hr. day. The plant and equipment used for sinking the piles consisted of a power plant with two locomotive-type boilers, carrying steam pressure at 160 lb., two Gardner duplex pumps, 20 in. by 12 in. by 10 in., and one Knowles duplex pump 20 in. by 8 in. by 18 in. The two Gardner pumps furnished low pressure water for the

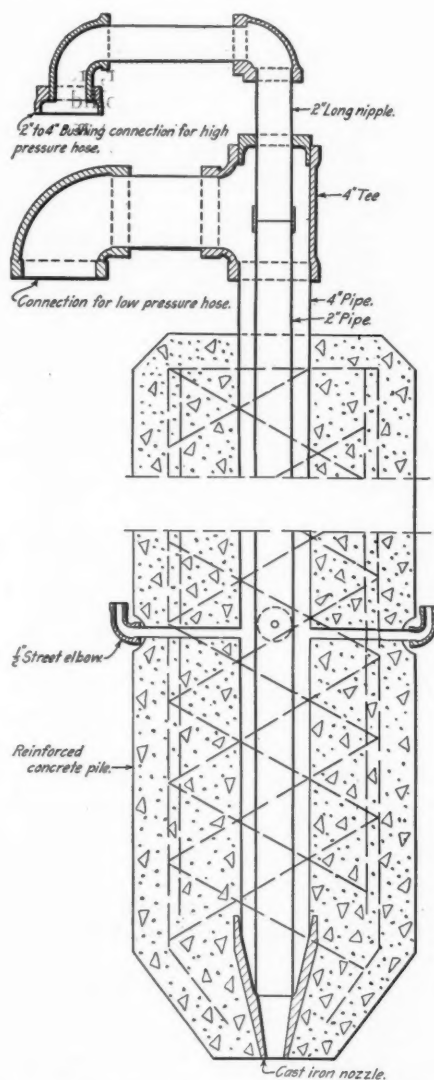


Raising a Pile Preparatory to Sinking

side openings and the Knowles pump furnished high pressure water for the jet at the point. This plant was located on the river bank and water was supplied at the point of sinking through two six-inch pipes which were laid on the old bridge and controlled at the hose connections by suitable valves. A 25-ton bridge derrick was used in handling the piles with the aid of a special device for carrying, up-ending, and sinking them, since they were all sunk from 5 to 18 ft. below

the surface of the water. A special device or wrench was used to disconnect the hose from the top of the pile after the sinking was complete.

The piles were driven inside of concrete boxes\* that had been previously constructed and sunk to depths varying from 10 to 20 ft. at the site of each pier, there being from 15 to 24 piles per pier. Since the water was shallow it was found practicable to build up a shoe or cutting edge for these boxes with 12-in. by 12-in. timbers on the river bottom, using enough courses, usually one or more, to bring the top above the surface of the water. The forms were then placed so that the concrete boxes could be built on these timbers. Each box was topped with timbers which were removed after the



Sections of the Top and Bottom of a Bignell Pile Showing the Facilities for Jetting

pier was complete. The top of the concrete was sunk below low water mark. After the piles were in place, the sand inside the boxes was excavated by means of a sand pump until the tops of the piling were uncovered to some depth. A sealing course of concrete was then placed through the water and after this had set sufficiently, the box was unwatered. In no case was the sealing course placed to such a depth as to cover the tops of the piles, consequently, when the box was unwatered, the tops were exposed to view and their location and condition could be noted. The piers were then concreted to completion in the dry.

\*An article describing the open concrete caissons used by the Burlington appeared in the *Railway Age* of June 21, 1918, page 1473.

Owing to the height of the bridge above the construction track, it was necessary to use a tower installed on a flat car to hoist the concrete mixture to a sufficient elevation to spout it into place.

The girder spans were placed in the usual manner after the completion of the piers. Concrete deck slabs were placed on top of the girder imbedded in a mortar base. The slabs conform to the Burlington standard and are 5 ft. long by 14 ft. wide with a parapet on each side to hold the ballast. The reinforced concrete trestle slab spans were all constructed in place. To make this possible the bases of the piers were provided with footings for false work bents to carry the deck and forms on which the slabs were poured. These slabs are built in sections and provided with lifting stirrups so that they may be taken out and replaced in case this is ever necessary. The falsework under these slab spans was left in place for 30 days to insure complete hardening of concrete.

Work on this bridge was begun in March, 1917, and completed on July 10, 1918, much trouble being experienced with labor shortage during the summer of 1917. All work was handled under the supervision of G. A. Haggander, bridge engineer, Chicago, and F. T. Darrow, assistant chief engineer, Lincoln, Neb., and was done by company forces.

## The Railroads and a New Era of Agricultural Development

THE RAILROADS HAVE LONG been foremost in the promotion of agricultural development because of their pecuniary interest in the creation of new traffic. It was feared by some that government control, by destroying competition between individual lines, would wipe out, in a large measure, the development activities of the railroads. Recent events, however, indicate that the contrary will be the case.

Acting upon the request of Hon. Franklin K. Lane, Secretary of the Department of Interior, A. P. Davis, director and chief engineer of the U. S. Reclamation Service, invited federal managers to send competent representatives to the International Farm Congress which took place at Kansas City, Mo., on October 17, to assist in working out a sound land settlement policy, particularly for the benefit of returned veterans of the war. The reclamation service has an appropriation of \$200,000, one-half of which has been set aside for a survey of cut-over and swamp lands and the other half for an investigation of arid lands suitable for irrigation.

Knowing the familiarity of the railroads with such tracts available for development, acquired after years of practical study of agricultural possibilities, Secretary Lane has called upon them to provide the Reclamation Service with all possible information regarding areas of 5,000 acres, or more, adjacent to their lines which are available for successful development. The secretary estimates that more than 15,000,000 acres of irrigable land still remain in the government's hands, that there is a total area of swamp and overflow lands in the country of between seventy and eighty million acres, while cut-over lands suitable for agriculture, approximate two hundred million acres.

All of these lands require an initial investment to put them in suitable condition for cultivation. A resolution passed by the International Farm Congress proposes that this be done jointly by the federal and state governments. The federal government, according to the plan outlined, will provide the money for reclamation and will carry on the work of preparing farms for cultivation. In order to place sufficient responsibility upon the individual states and thereby to eliminate, as far as possible, the danger of injury to the scheme through "pork barrel" politics, the state will be required to provide the lands to be used, whether they have been previ-



ously in private hands or state-owned. The lands offered by the states will be subject to the approval of the federal government both as to quality and cost. The state will provide facilities for the agricultural training of soldiers lacking experience or knowledge of local conditions, and the cost thereof will be shared equally by the state and federal governments. Provision will also be made for the repayment by the individual settler of the cost of the acquirement and reclamation of the land and the preparation of the farms for cultivation, these payments to be made in small installments extending over long terms at low rates of interest, so as not to prove unduly burdensome on the farmer.

Details of the plan, with the exception of the clauses providing for the co-operative efforts of the federal and state governments, are modeled after those included in the Wright law of California, under which two tracts of about 4,000 acres each were set aside for development and settlement by the state. One of these tracts has already been fully settled and the operation of the law has proved a decided success.

The Chicago, Burlington & Quincy has submitted a map to the Reclamation Service showing all the irrigation tracts in Wyoming set aside under the Carey act of that state. This law provided for the private development of irrigation projects and the regulation by the state of water rates to homesteaders. In these areas about 1,000,000 acres are still available for settlement. Members of the agricultural committee for the Railroad Administration are taking vigorous steps to create a sentiment in various western states favorable to the proposed reclamation scheme. Letters have been received from Governor Capper of Kansas and Governor-elect Carey of Wyoming, which indicate that they will use all their influence to make the project a success. It has also been learned that the governor of New Mexico is favorable to the plan. Under the states defense act he is custodian of the funds of the State Council of Defense, \$500,000 of which remains in his hands unexpended. He is considering seriously urging the use of a portion of this amount in any preliminary work that may be necessary to launch the reclamation movement in his state.

## Train Accidents in October<sup>1</sup>

THE FOLLOWING IS A LIST of the most notable train accidents that occurred on the railways of the United States in the month of October, 1918:

COLLISIONS						
Date	Road	Place	Kind of Accident	Kind of Train	Kil'd	Inj'd
5	Atchison, T. & S. F.	Hackney	bc	P. & F.	3	2
9	Pennsylvania	McVeytown	rc	P. & P.	1	4
11	Long Island	Woodhaven	xc	P. & F.	0	17
13	Pennsylvania	Bush River	rc	F. & F.	2	0

DERAILMENTS						
Date	Road	Place	Cause of Derailment	Kind of Train	Kil'd	Inj'd
26	Norfolk & W.	Norfolk	open draw	F.	4	0

The trains in collision near Hackney, Kan., on the morning of the fifth were westbound passenger No. 17 and a westbound freight standing on a side track. One engineman and two firemen were killed, and one passenger and one employee were injured. Following some switching operations by the freight train, a facing point crossover switch had been left open, and the passenger train ran through this

switch and struck the side of the engine of the freight, which fouled the crossover track.

The trains in collision near McVeytown, Pa., on the ninth were westbound express passenger No. 37 and a preceding first-class train No. 53. The collision occurred in a dense fog while the leading train was running about 15 miles an hour and the other one about 25 miles an hour. The engineman of No. 37 was killed and the fireman of 37 and three employees on train 53 were injured. The rear cars of No. 53 were empty. The trains were running on eastbound track No. 2, the westbound tracks being blocked by the derailment of a freight train.

The trains in collision at Woodhaven, L. I., N. Y., on the evening of the 11th were an eastbound passenger train, and a switching engine standing on a side track. The passenger train, made up of electric cars, with the motorman sitting in the front vestibule of the leading car, ran over a facing point switch set for the side track, and collided with the yard engine at about 25 miles an hour. The motorman and 16 passengers were injured. The collision was due to disregard of an automatic block signal.

The trains in collision near Bush River, Md., on the morning of the 13th were northbound passenger trains, both of which had discharged their passengers at the preceding station. The leading train had been stopped because of delay to a freight train ahead, and the following train came on, in a dense fog, and crushed the two rear cars of the standing train. Two trainmen were killed. The second train had passed an automatic block signal set against it, and, considering the fog, was running at excessive speed.

The train derailed at Norfolk, Va., on the night of the 26th, was a yard freight train consisting of 44 cars and two locomotives, the two engines being at the head of the train but moving tender first. The leading engine ran into an open draw and fell into Elizabeth river, about 30 feet deep. One engineman, one fireman, and two brakemen were drowned. The bridge (a lift bridge) had been opened after the train had passed, at about 12 miles an hour; a signal, in the clear position, located 560 ft. west of the draw. (At the speed named the bridge tender would have 31 seconds in which to open the draw after the leading engine had passed the signal.)

**Electric Car Accidents.**—Of the half-dozen prominent collisions or derailments occurring on electric lines in October, only two were attended by fatal results. These were both on elevated lines in New York City, viz:

In a rear collision of southbound passenger trains on the Interborough Rapid Transit Company's line at Jackson avenue, on the morning of the third, a motorman and one passenger were killed, and about 25 passengers were injured. A local train from 180th street ran into a preceding train which was standing at the station platform, having been detained a few minutes. The colliding train had run past an automatic signal set against it; and also had run over an automatic train stop; but the train-stop was located at the stop signal, not the caution signal, and was not far enough in the rear of the standing train to allow space in which to stop the moving train.

In a rear collision of northbound trains at 187th street and Third avenue, on the evening of the eighth, the motorman was killed and 13 passengers were injured. A Second avenue express train ran into a Third avenue local train, which had been stopped a short distance in the rear of the station at Fordham. The rear part of the last car of the standing train was empty.

The Pennsylvania State College Engineering School at State College, Pa., was destroyed by fire on the night of November 25; estimated loss, including equipment, \$300,000.

<sup>1</sup>Abbreviations and marks used in Accident List:

rc, Rear collision—bc, Butting collision—xc, Other collisions—b, Broken—d, Defective—unf, Unforeseen obstruction—unx, Unexplained—derail, Open derailing switch—ms, Misplaced switch—acc. obst., Accidental obstruction—malice, Malicious obstruction of track, etc.—boiler, Explosion of locomotive on road—fire, Cars burned while running—P. or Pass., Passenger train—F. or Ft., Freight train (including empty engines, work trains, etc.)—Asterisk, Wreck wholly or partly destroyed by fire—Dagger, One or more passengers killed.



# The Valuation Aspect of Abandoned Property

## A Rational Analysis of the Problem Leading to Allowance for Replacements Promoting Economies

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**T**HE QUESTION as to how abandoned property should be treated in a valuation has caused much discussion and it can hardly be said to be satisfactorily answered. The present discussion is the result of an attempt to answer it in a particular case, in which the valuing engineer endeavoring to reach a conclusion had reasoned as follows:

Abandonments in general come about from five causes, although the fourth and fifth may be called one. The five causes are:

1. The item abandoned is worn out in service and is to be replaced by a new item of like kind or at least by an item designed to perform the service of the worn out item.

2. Inadequacy of the item to perform the necessary service for an increased demand for the product. A small reservoir adequate for the community served when it was built becomes totally inadequate although not worn out when the community served has grown in size and demand.

3. The item becomes obsolete because the demand for its product ceases or is greatly lessened for one reason or another.

4. The item becomes uneconomical to operate because of advances in the art of manufacture which have resulted in the production of an item to perform the service for which the abandoned item was designed at such a reduction in cost, or increased regularity of output, that the operator is forced to dispose of the older item, although not worn out, and to install a more modern item in its place. This has frequently happened during the development of electric power generating apparatus, the telephone, phonograph, etc.

5. Akin to 4 is the abandonment of an item not worn out, and not abandoned out of necessity because of the invention of more economical machines, but abandoned simply because a more economical way of performing the service for which the item was designed has been found and the operator, though not forced to do so, elects to make the change. A common instance of this sort is the abandonment of a piece of railroad line of high grades and perhaps sharp curves, for a newly located and constructed low grade line more economical of operation. Another instance of this sort recently called to attention is the removal of a gas plant from the top of a hill where it was originally built by order of the community, a long way from rail connections for its supplies, to a point on low ground with a rail connection. It is not necessary to move the plant but economy seems to dictate the abandonment of the old site for the new one.

It seems unnecessary to discuss a sixth cause, because the regulating authorities have seemed to recognize the situation and have made provision to cover the loss involved in the change. Such a cause is the change in form of construction to conform to the orders of public bodies, as the placing of telephone and other wires underground at the loss of the overhead construction abandoned.

The treatment of the abandoned property in a valuation will depend on the cause of the abandonments.

1. When an item is worn out in service its cost less the salvage, if any, is credited to capital and the cost of the new item is charged to capital. If the cost of the old item has not been received during the life of the item, or is not received at the time of discarding, the owner loses that sum as he should, unless he has been prevented by some author-

ity from collecting the cost of the item during its life or at the time it is discarded. If it is of that class of small items kept up by charges to maintenance in operating expense, the cost is received presumably during the period of time over which the particular item is spread, a month or a year. If the item is of that class of major items whose costs are too large to carry in operating expense all at one charge, it is proper to collect a capital consumption allowance in the charges for service, distributed over a period approximately equal to the life of the item so that the burden may be distributed and not produce great inequality in operating expense. There is never any question but that the cost of an item discarded because it is worn out in service is to be collected in charges for service, either distributed over a period of years or in a single charge as the case may be. Abandonment for this cause, then, gives no trouble except as a question may arise as to which method should be adopted for charging the cost. The cost is recognized as a proper charge. It will not concern us further now.

2. Inadequacy reached at some time is a trifle more troublesome although it seems that it should not be. If in the beginning it has been recognized that sooner or later the item would become inadequate, and an estimate of the time has been made, and an annual capital consumption allowance calculated to return the cost at the expiration of the useful life of the item has been collected in the rates, and if the estimate of the period of usefulness has been correct, there is no trouble at all. When the retirement takes place, the cost is written off, or credited to capital, and there is in hand in cash or other property a sum equal to the cost of the item; a sum that has been collected in bits through the years, and perhaps invested in new property items if not held as cash in bank. It is immaterial what has been done with the accumulations, the owner spent so much for an item of property which has served its usefulness and he has received back the same sum in his charges for service. He may use this sum, if it is in cash or convertible securities, and additional money if necessary, for the creation of the larger property now required. If the sum is in other property not convertible, he finds the new money necessary from some other source. When the new property is to be valued at a later date, the old property is ignored, it was created and used, and has been paid for by those served.

If, however, the estimate of time has not been just right, it will have been too short or too long. If the former the cost will have been collected before the item is retired; if the latter, something still will be due when the property is retired. This that still is due might then be amortized over a few years if too large to charge in one year's expense, and if this is completed before a valuation of the new property occurs, no question will arise. If, however, the old item remains partly unpaid for when the valuation occurs, the valuing agency should take into account the amount uncollected, and in general, perhaps, would do so if the matter could be presented properly. It seems clear that this would be right.

But let it be supposed that the first item has been thought to be an everlasting item and no collection of amortization allowance ever has been made. When the new item must

be purchased or created new capital must be forthcoming and the owner will have invested capital equal to the cost of the retired item and the cost of the new item. Shall he be allowed in a later valuation to collect a return on the entire sum? He will doubtless have realized by now that nothing is everlasting and will desire to collect a capital consumption allowance. Shall he have this on the discarded property as well as that existing? If he has not been prevented from reimbursing himself in the past by rates fixed too low by public authority it would seem that he should stand in the same position as the manufacturer of any article of commerce who does not charge enough for his output to cover the depreciation of his plant as well as interest on the cost. Such a manufacturer would have to stand his loss when his outgrown machinery must be discarded or he would have to increase his price so that future purchasers of his product would pay for the plant used in the service of past purchasers. Whether or not he could do this would depend on the market and his competition. He certainly would do it if he could. And while it might seem unfair to the later purchasers, it is probable that any man who had made such a mistake in ordinary business would be expected to recoup himself later if he could. However, the man serving the public and subject to public control, who had lost by his own error, could hardly claim the *right* of reimbursement, and hence it would seem that he must expect to have his property valued as it stands on the date of valuation without the inclusion of his discarded items. Of course, in general only major items, too large in cost to be handled in current operating expense, are being considered.

3. So far as can be recalled at this writing few privately owned public utilities are likely to have abandoned property questions arise due to the cessation of the demand for their product although it is conceivable that in some quarters gas properties may become obsolete owing to the introduction of cheap electric current. This would mean the loss of the whole property and a question of valuation could not arise. The third cause for abandonment of property will be passed over as not likely to arise soon as a question of valuation.

4. When an item becomes uneconomical to operate because the advancing art has developed newer types operating much more cheaply, or with much greater satisfaction to consumers, it is discarded for the newer type. This case is somewhat similar to the second. The owner should have recognized the fact of advancing art and should have collected in his charges a sum sufficient to cover an early retirement of an unworn out item. If he has done so a valuation subsequent to the replacement will raise no question. If he has not covered the cost by the time the item is retired, a question may arise. So long as there is no competition he may go on using the old item, perhaps until it is worn out or he has recovered its cost in his charges for service and it is to be presumed that he will not make the change unless the service of the new item will be so much of an improvement on that of the old that he may hope to earn enough to pay

1. return and retirement allowance on the new item, and
2. return and retirement allowance during a short period on the unamortized sum remaining in the old item.

But if a question of rates arises before he has recovered this unamortized sum, a public valuing body is likely to value only what it finds and the owner is likely to lose whatever sum remains invested in the old item. In this case upon proper proof of the situation being produced it would seem fair, so long, at least, as rates have not been raised to pay for the old item, to permit the rates to remain sufficiently high for a sufficient time to reimburse the owner for his complete outlay still remaining in the old item. If he had not expected this to be allowed, probably he would not have made the change so soon and the public would not so soon

have had the advantage of the better service and the lessened cost. In such a case fair treatment would seem to mean a value including the investment remaining in the old item, and operating expenses sufficient to include a sum for its early amortization. Sometimes this is done by considering the old item as legitimately retained emergency equipment. Here should be no subterfuge.

5. The fifth cause has produced perhaps the most serious questions that have arisen, and it is not clear that they have always been settled rightly. These are questions right now of immense importance to the railroads of the United States under valuation by the Interstate Commerce Commission. To try to reason clearly a special case will be considered.

Let a railroad from A to B, 100 miles long, be built at a cost of \$5,000,000, or \$50,000 a mile. Let it be operated for some 10 years and in that time let it build up a good business. Let it appear that there are three relatively bad parts of the line each about 10 miles long with much heavier grades than any other portion, over which the trains operated over the rest of the road by single engines must be helped by pushers. Let it also appear that so much pusher service is less economical than the operation of lighter and consequently more trains over the entire line, trains that can be hauled over the heavy grades with single engines underloaded on the better portions of the line. There comes a time when it appears desirable to reduce the grades over the three bad places, and the engineering department is asked to show how this can be done to best advantage, what it will cost, and whether it will pay. The department reports that two of the bad places may be improved best by cutting down the hills and filling the hollows deeper, doing some really heroic surgery on mother earth at an expense of about \$500,000 in each place, and that the third place may be improved best by a relocation on a reduced grade at an expense of \$1,000,000. The department also reports that the saving in operating costs, brought about by these improvements will amount to \$150,000 annually or  $7\frac{1}{2}$  per cent on the cost of the improvements. The improvement seems to be warranted, is made, and operation on the improved line is begun. The line is the same as before except for the 10 miles of abandoned line, the two ends of which are connected by the relocation.

Just after operation begins a general rate question arises, and a valuation of the property is ordered with a determination of operating expense. Just before the improvement was made a valuation based on actual costs would have shown \$5,000,000 for the roadbed, right of way, track, and permanent buildings and fixtures, and an annual operating expense of \$1,460,000. Forgetting equipment and retirement allowances, there would seem to be a call for a gross income of say,  $7\frac{1}{2}$  per cent on \$5,000,000, plus \$1,460,000.

Just after the improvement is made, if the property is valued just as it is found, and as before on the basis of actual cost, there would seem to be a value of \$5,000,000 less \$500,000 for the ten miles abandoned, and plus \$2,000,000 for the improvements; and an operating expense of \$1,460,000 less \$150,000 or \$1,310,000. The gross income to cover operation and  $7\frac{1}{2}$  per cent on the cost of the permanent way before the improvement is \$375,000 for return and \$1,460,000 operating expense or \$1,835,000. The gross income to cover operation and  $7\frac{1}{2}$  per cent on the cost of the permanent way after the improvement is \$507,500 for return and \$1,310,000 operating expense or \$1,817,500. There is no return on or amortization of the abandoned 10 miles costing \$500,000. But the owner went into this improvement under the hope that his gross income would be maintained so that he could continue to pay a return on what he had invested already and also, by the saving made possible, could pay a return on the cost of the improvement; and perhaps could amortize the cost of the abandoned line



by future growth of business at the then prevailing rates. If allowed to maintain the rates he was charging before the improvement he would almost certainly be able to do this. No increase in rates would be necessary. But the regulating body steps in and says—if it does—You cannot have included as property that which you have abandoned. We shall allow you to earn  $7\frac{1}{2}$  per cent on that which you have, and your operating expense.

The owner has been to great expense to reduce operating costs, looking to the future to reimburse him for his loss of investment in so doing. Should the public then take advantage of him and say, "You have reduced operating costs and we shall pay you only your reduced costs and a return on what we find you have of property in service"? Or should the public say, "You have made a fine improvement that has reduced operating costs; we shall pay you the same rates on which you counted, that with the growth of your business you may amortize your discarded investment, and with the expectation that when you have so done you will give us the benefit of your lower operating costs"?

Doesn't the answer seem obvious? Will improvements of this sort be made, if the owner cannot reasonably hope to have his abandoned investment amortized? The improvement, costing the public nothing, and eventually benefiting it, is desirable from the public viewpoint as well as from that of the owner; indeed, under a regulation that limits the return to operating costs plus a fixed rate of return on investment there is no inducement to the owner to make such improvements as have been considered. Indeed, he must have reasonable assurance that he will receive not only what

he abandons, but a share in the profit that results eventually from the improvement.

What will happen if the public owns the enterprise? If it decides to make such an improvement as has been considered, it will still have to pay a return on the money represented by the abandoned property until the debt in that sum has been discharged. And the public cannot do this unless it charges enough to those whom it serves to pay the return and amortize the debt. Shall it demand less charges of the private owner?

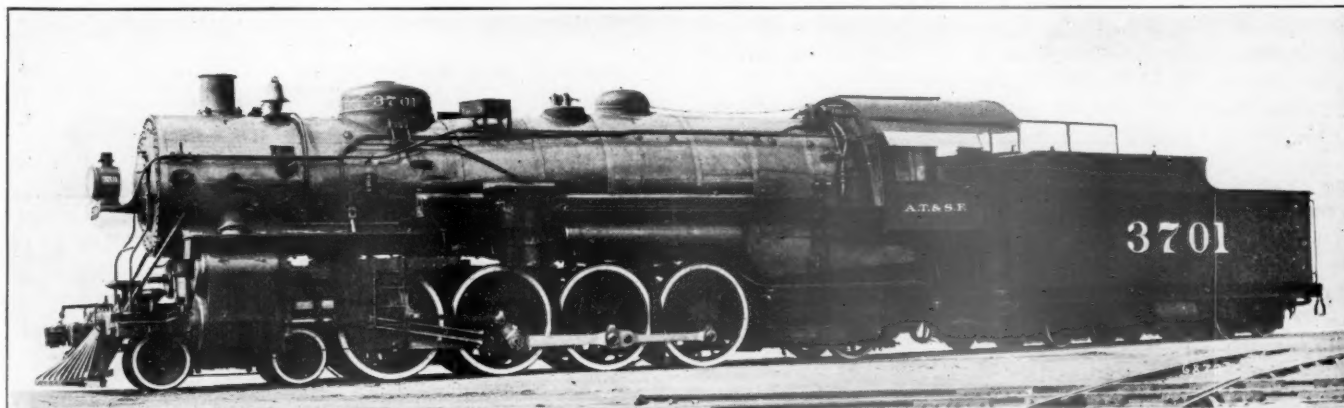
Now, after the lapse of a good many years, the case may be different. It will be pertinent then to inquire whether the cost of the abandoned property has been amortized. Properly kept books should show this. But properly kept books are rare. An estimate may be made, and if it seems that the company owner has been fully reimbursed for the abandoned property, it may be written off, or ignored in a valuation. If it could have been written off, but has not, although earnings have been sufficient, but have been applied to other uses, it would seem to be fair to ignore such abandoned property. There is some question as to what a court would do. The law is less elastic than commission procedure. It seems likely that the courts would require the finding of value only for that which is in existence at any time of valuation. While a commission with power quite properly might inquire into what would seem to do justice in each particular case and could direct the procedure accordingly, should not that which is fair prevail. Has the Interstate Commerce Commission adopted the fair procedure in each case?

## First Mountain Type Locomotives for the Santa Fe

### Two of Similar Design Differing in Details, for Comparative Trial; Heaviest 4-8-2 Type Yet Built

**I**N JUNE, 1918, the Atchison, Topeka & Santa Fe received from the Baldwin Locomotive Works, two Mountain type locomotives for use in passenger service, which are designed to develop 54,100 lb. tractive effort. These engines bear the road numbers 3700 and 3701, and although they are generally similar in design there are a number of differences in the details. Engine 3700 is fitted for coal

favorably with any of the same type which have been built heretofore. They are the heaviest of the type thus far built and with one exception have not been exceeded in tractive effort by any 4-8-2 type locomotives having driving wheels of equal or greater diameter. The locomotives built by the Norfolk & Western in 1916, with drivers and cylinders each one inch larger in diameter than the Santa Fe engines,



One of the Two Mountain Type Locomotives Recently Built for the Atchison, Topeka & Santa Fe

burning service and has the Baker valve gear, while engine 3701 burns oil and is equipped with the Walschaert valve gear. There are several other differences to which reference will be made later.

The proportions of these locomotives as a whole, compare

develop a tractive effort of 57,200 lb. A comparison of the more important dimensions of the Santa Fe locomotives with those of several other notable 4-8-2 type locomotives is presented in the table on the following page.

Using Cole's ratios as a basis of comparison, the Santa Fe

locomotives have ample evaporative capacity, the boiler being something over 100 per cent in this respect. The grate, however, is relatively small, and has a rating of only 87 per cent. In other words, the development of the maximum horsepower which should be obtained from cylinders of the size employed on these engines, at the rate of 3.5 lb. of coal per horsepower-hour, will require an hourly combustion rate of 138 lb. per sq. ft. of grate instead of the 120-lb. rate on which Cole's ratios are based. The New York Central locomotives referred to in the table have a 98 per cent boiler,

COMPARISON OF PRINCIPAL DIMENSIONS OF NOTABLE 4-8-2 TYPE LOCOMOTIVES

Road	Santa Fe	N. Y. C.	N. & W.	C.R.I.&P.
Year built	1918	1916	1916	1913
Tractive effort, lb.	54,100	50,000	57,200	50,000
Total weight, lb.	353,900	343,000	341,000	333,000
Weight on drivers, lb.	227,700	234,000	236,000	224,000
Cylinders, in.	28 by 28	28 by 28	29 by 28	28 by 28
Boiler pressure, lb. per sq. in.	200	185	200	185
Diameter of drivers, in.	69	69	70	69
Evaporating heating surface, sq. ft.	4,790	4,430	3,984	4,117
Superheating surface, sq. ft.	1,086	1,212	882	994
Grate area, sq. ft.	71.5	66.8	80.3	62.7

with a slightly higher grate rating, and the Norfolk & Western locomotives have a boiler between 80 and 90 per cent, with a 90 per cent grate.

Apart from the changes incident to the use of different fuels, the boilers of the two Santa Fe locomotives are alike. A conical ring is placed in the middle of the barrel, increasing the shell diameter from 82 in. at the front end to 96 in. at the throat. The firebox has a combustion chamber 45½ in. long, and firebrick tubes are used in both the boilers. An arch is fitted in the coal burning locomotive, which is fired with a Duplex mechanical stoker and is equipped with power-operated grate shaker and fire door. On engine 3701 the standard arrangement of Santa Fe oil-burning equipment, with Booth burner, is used. The superheaters are of the same size as those used in the Santa Fe 3160 class Mikado type locomotives.

Flexible staybolts are applied in the breaking zones in the sides, back and throat of the firebox, and in the sides and bottom of the combustion chamber, while four rows of expansion stays support the forward end of the combustion chamber crown. In the case of such of the expansion-stays as cannot be placed radially with relation to the outside shell, bosses are electrically welded to the roof sheet in order to provide a sufficient number of threads for the staybolt sleeves.

The main dome is located immediately in front of the combustion chamber, while the auxiliary dome is farther forward on the conical ring. This dome is placed on the left-hand side of the boiler over a 17-in. opening the center of which is 14 in. from the longitudinal boiler center. The opening thus clears the dry pipe, and permits easy entrance to the boiler for inspection purposes.

The dynamic augment in rail pressure due to the effect of the counterbalance, is kept within reasonable limits by using comparatively light reciprocating and revolving parts made of special materials. The piston heads are steel castings of dished section, while the piston rods, main rods, side rods, and main crank pins, are of Nikrome steel. The piston rods are of the extended type. The crossheads interchange with those of the 3160 class Mikados and are of the Laird type, with comparatively light bodies of .40 per cent carbon steel. Fifty per cent of the weight of the reciprocating parts is balanced. The driving-wheels are fitted with Mansell tire retaining rings.

Locomotive No. 3700, with the Baker valve motion, is equipped with piston valves of the Santa Fe standard design and with the Ragonnet type B power reverse mechanism; while locomotive No. 3701, which has the Walschaert motion, is equipped with the American Balanced Valve Company's piston valves and the Lewis power reverse gear.

The running gear details include several features of interest. The main frames have a width of 5½ in. and the upper and lower frame rails between adjacent pairs of driving pedestals are united by vertical ribs, which are cast in one piece with the frame and greatly increase its strength in a vertical direction. These ribs support the equalizing beam fulcrum pins. The frames are braced transversely at each pair of driving pedestals and also midway between the pedestals. Long journals with driving boxes of the Cole type are used on the main driving axle and the shoes and wedges interchange with those of the 3160 class Mikados. The rear frame is of the Commonwealth cradle pattern, and in this case is used in combination with the Delta trailing truck. Locomotive No. 3700 is equipped with a leading truck of the Economy constant resistance type, while the leading truck of No. 3701 has three-point suspension swing links and a one-piece, cast steel frame in lieu of a frame of the built-up design generally used.

The guide-yoke and valve motion bearer of each locomotive are braced to the boiler by heavy wrought iron rods having jaws on their upper ends which are pinned to brackets studded to the boiler shell. These brackets are fitted against external liners riveted to the boiler shell. Ample strength is thus provided in a vertical direction, while provision is made for lateral movement due to the expansion and contraction of the boiler shell.

The tenders have six-wheel trucks and one-piece, cast-steel frames and the details interchange with those of the Mikado type locomotives previously mentioned.

Although these locomotives represent a type that is new to the Santa Fe System, and are in a certain sense experimental, their design is based on that of locomotives which are giving satisfactory results on this road, and no radically new features are embodied in their construction. Few railways in this country present more difficult operating conditions than the mountain divisions of the Santa Fe, where there is an excellent field for demonstrating the capacity and efficiency of the Mountain type in heavy passenger service.

The table which follows presents the principal dimensions and data pertaining to these locomotives:

General Data	
Gage	4 ft. 8½ in.
Service	Passenger
Fuel	Oil, soft coal
Tractive effort	54,100 lb.
Weight in working order	353,900 lb.
Weight on drivers	227,700 lb.
Weight on leading truck	65,700 lb.
Weight on trailing truck	60,500 lb.
Weight of engine and tender in working order	587,600 lb.
Wheel base, driving	18 ft.
Wheel base, total	39 ft. 5 in.
Wheel base, engine and tender	76 ft. 8½ in.

Ratios	
Weight on drivers ÷ tractive effort	4.2
Total weight ÷ tractive effort	6.5
Tractive effort × diam. drivers ÷ equivalent heating surface*	581.5
Equivalent heating surface* ÷ grate area	89.8
Firebox heating surface ÷ equivalent heating surface, per cent.	5.8
Weight on drivers ÷ equivalent heating surface*	35.5
Total weight ÷ equivalent heating surface*	55.1
Volume both cylinders	19.9 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	322.6
Grate area ÷ vol. cylinders	3.6

Cylinders	
Kind	Simple
Diameter and stroke	28 in. by 28 in.

Valves	
Kind	Piston
Diameter	15 in.

Wheels	
Driving, diameter over tires	69 in.
Driving, thickness of tires	3½ in.
Driving journals, main, diameter and length	12 in. by 20 in.
Driving journals, others, diameter and length	11 in. by 12 in.
Engine truck wheels, diameter	33 in.
Engine truck, journals	7 in. by 12 in.
Trailing truck wheels, diameter	47 in.
Trailing truck, journals	9 in. by 14 in.

Boiler	
Style	Conical wagon-top
Working pressure	200 lb. per sq. in.
Outside diameter of first ring	82 in.
Firebox, length and width	122¼ in. by 84¼ in.



Firebox plates, thickness...	Sides, back and crown, $\frac{3}{8}$ in.; tube, — in.
Firebox, water space.....	Front and sides, 5 in.; back, $4\frac{1}{2}$ in.
Tubes, number and outside diameter.....	253— $2\frac{1}{4}$ in.
Flues, number and outside diameter.....	43— $5\frac{1}{2}$ in.
Tubes and flues, length.....	21 ft.
Heating surface, tubes and flues.....	4,416 sq. ft.
Heating surface, firebox, including arch tubes.....	374 sq. ft.
Heating surface, total.....	4,790 sq. ft.
Superheater heating surface.....	1,086 sq. ft.
Equivalent heating surface*.....	6,419 sq. ft.
Grate area.....	71.5 sq. ft.

	<i>Tender</i>	
Tank.....		Water bottom
Frame.....		Cast steel
Weight.....		233,700 lb.
Wheels, diameter.....		33 in.
Journals, diameter and length.....		$5\frac{1}{2}$ in. by 10 in.
Water capacity.....		12,000 gal.
Oil capacity.....		4,000 gal.

\*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

## Organization and Work of Fuel Conservation Section

### The Measures Taken to Secure Economy in the Use of Fuel with an Estimate of the Savings Effected

THE WESTERN RAILWAY CLUB met at the Hotel Sherman, Chicago, on November 18. Major E. C. Schmidt, assistant manager of the Fuel Conservation Section, United States Railroad Administration, presented a paper on the work of that department, which was discussed by representatives of the Fuel Administration and of the railroads' fuel organizations. Abstracts of both the paper and the discussion follow:

As implied in the circular announcing the formation of the Fuel Conservation Section of the U. S. Railroad Administration, the purposes of this department are:

(a) To effect economies in the fuel consumed by locomotives.

(b) To effect economies in the fuel consumed at railway power and heating plants, pumping stations and the like.

(c) To bring about an improvement in the quality of the coal mined for railway purposes. It may be worth while, briefly, to state here the conditions existing last spring and to review the considerations which have shaped the general policies of this section, and which have determined the points where its effort is being most vigorously applied. Most large railroads have had for years some special organization for overseeing the use of fuel and for educating enginemen and others in its proper handling. Much effort has been expended in defining proper methods and practice and, in general, these methods are well understood by those concerned. In view of these facts our task was, therefore, one of enlisting individual interest and effort in order to insure the constant application of well-known methods, rather than one of educating men as to how fuel should be conserved. An exception to this statement lies in the presence nowadays of an unusual number of new firemen on locomotives; but this condition has not been overlooked.

The transportation department, by the quick movement of trains, by the avoidance of stops and train delays, and by better co-ordinated handling of locomotives at terminals, can influence coal consumption almost, if not quite, as fundamentally as the motive power department. Indeed there are very few individuals in the operating departments of railways whose daily work does not affect, whether directly or indirectly, the consumption of fuel. Eugene McAuliffe, director of the Fuel Conservation Section, in an address at the last convention of the Traveling Engineers' Association, well stated the scope of fuel economy as follows: "The conservation of railway fuel, beginning at the mine, goes thence over the track scales on to the coaling station through the breaker bars into the pockets, thence to the tender and the furnace door; not, however, to end at the stack mouth, but to begin again at the drawbar, and, sweeping back from there, to involve the trainmen, despatchers, yardmasters, signal men, men in charge of air brake maintenance, men in charge of lubrication, and maintenance of way men—in fact, everyone from chief engineer to track men, and from superintendent to train-

men." These considerations have led us—not to ignore enginemen and shopmen—but to appeal to superintendents, trainmasters and despatchers, as they had not been appealed to thus far, and to emphasize in all possible ways the influence of their work on fuel conservation.

The shortage of labor and the difficulty in obtaining material made it clear at the outset that we ought not to insist upon widespread changes in equipment; and the stress of readjustment which the roads were undergoing, as well as the shortage of men, also made it desirable that we should not at once insist upon the application of new methods, nor upon extensive changes in the personnel or type of organization of the railway fuel departments.

About 90 per cent of railway fuel is used for locomotives; the remaining tenth is used in stationary power and heating plants, pumping and coaling stations, and in similar situations. The majority of these plants are small, and so situated as to make adequate supervision difficult. In the main they are wasteful, and they use in the aggregate an amount of coal which demands effort at conservation; by their very wastefulness they offer an excellent opportunity to make savings.

Since the beginning of the war there has been a serious deterioration in the quality of coal, due to the pressure for increased production and the subsequent falling off in methods of cleaning and also to the reopening of mines which produce inherently inferior coal. The Fuel Administration has for months been at work on this problem, spurring on the miners and mine operators to greater care in the preparation of coal; and improvements have been made under their effort. Notwithstanding this progress, the situation, as far as railway fuel is concerned, seemed to demand more radical treatment because improvement in the quality of coal is so fundamental to our whole conservation program.

#### GENERAL POLICIES OF THE SECTION

The general policies of the section have been determined by the considerations thus briefly reviewed. They may be summarized as follows:

1. To exercise merely *general* control over the railway fuel departments in their work of supervising and stimulating the effort of firemen, engineers, roundhousemen and shopmen; rather than to attempt to deal directly with the individual.
2. To strengthen the organization of these railway fuel departments, to magnify the importance of their work, to increase their authority where necessary, and to cause the establishment of such organizations on roads where they do not exist.
3. To cull the best practices of these organizations and to bring about their general adoption.
4. To lay particular stress upon the opportunities for conservation in railway transportation departments, emphasizing the opportunities for economy open to superintendents, trainmasters, despatchers, and trainmen in their daily work.
5. Avoid rigidly any widespread changes in equipment, either on locomotives or in stationary plants, seeking, however, to get the best possible results out of existing equipment.
6. To avoid foisting upon the railroads new methods, trying rather to enlist the co-operation and interest of everyone concerned toward greater individual effort in the daily application of well-known practice.

7. To lay especial emphasis upon the necessity for improvement in the stationary power and heating plants located at terminals, shops and round-houses, and in pumping plants, coaling stations and similar situations.

8. In co-operation with the United States Fuel Administration to do everything possible to bring about an improvement in the quality of coal supplied for railway use.

Our total supervising force consists at present of 11 men. For the purpose of investigating in special cases the preparation of coal at the mines we have one man in the field. At the time that these supervisors were installed in office, we called in each region a meeting of the officials of the roads in that territory to explain to them our purposes and plans, and to make to them specific suggestions concerning improvements. Responsible operating officials have never been reached so authoritatively nor in such large numbers in connection with the conservation of fuel. The meeting held on August 1 in Chicago, for example, was attended by 550 officials occupying positions of such authority and influence as to make their interest and opinion immediately effective on their roads. Following these meetings our supervisors have at once begun their inspection of each road, observing the opportunities for improvement and making directly to chief operating officials their request for changes.

#### ORGANIZATION OF RAILWAY FUEL DEPARTMENT

In this connection we have been making the following tentative recommendations concerning the organization of railway fuel departments. We have suggested that the head of this department be relieved of all duties except the responsibility for the conservation of fuel. We have recommended that we have as assistants men of the experience and capacity of the usual first-class traveling engineer, and that there be one such assistant for every 75 locomotives. We have suggested that in addition skilled firemen be detailed as instructors in sufficient number to give each new fireman adequate training before beginning his road service; and that these fireman instructors have charge of the fire-cleaning forces at terminals. These men are to give their entire time to fuel economy, and are to be in addition to such traveling engineers as the motive power department may require for other purposes.

In our stationary plant campaign we have sought to remain in constant contact and co-operation with the United States Fuel Administration; and while we have maintained jurisdiction over the railway plants we have kept ourselves informed of the aims and recommendations of the Fuel Administration and, insofar as they are applicable to the railways, we have incorporated them in our own procedure.

Many railroads maintain fuel inspectors to inspect coal at the mines. Since July we have been accumulating information concerning these inspection organizations and we have been perfecting with the Inspection Section of the Bureau of Bituminous Coal of the Fuel Administration arrangements looking toward improvement in the quality of coal by greater care in its preparation and cleaning at the mines. As a result of these arrangements every railroad fuel inspector has now been formally authorized to act for the Fuel Administration in his daily work and in his dealings with mine operators; and he has been provided with credentials showing his authority. In situations demanding improvement he reports to us the facts in detail and also deals directly with the operator in trying to effect improvements in preparation. In cases where, notwithstanding his effort, coal of poor quality is persistently shipped, the inspectors' reports are verified and such mines or parts of mines are being prohibited by the Fuel Administration from making further shipments and the Railroad Administration is withdrawing the car supply from such operations. Supplementing this process, we ourselves have recently been inspecting mines complained of and when we were assured that the product was unfit for locomotive use we have asked the Central Advisory Purchasing Committee of the Railroad Administration to instruct the railroads to cease purchasing or accepting coal from these mines.

While statistics are being accumulated which ultimately

may reflect the results of our efforts, we are not yet able to draw conclusions from them; but evidence of the effectiveness of our campaign comes to us in other forms from many directions. From practically all railroad officials we have had a most hearty response to our appeals, and the interest which they have expressed has translated itself, in almost every instance, into improvements clearly obvious to us and to our supervisors. Fuel departments, have, in many instances, been thoroughly reorganized; in others they have been enlarged in accordance with our suggested tentative standards. In many cases the heads of these departments are now reporting directly to general managers or federal managers and their recommendations are being acted upon with much more authority than has ever been the case. In other instances railroads which had no definite organization for fuel supervision have formed fuel departments and are giving the conservation of fuel adequate attention.

Certain details of equipment and many elements of locomotive maintenance which affect fuel economy are receiving more attention than before. Campaigns for economy in the uses of fuel at stationary plants have been organized on many roads, and definite organizations charged solely with the responsibility in this field have been formed where hitherto such responsibility has been a purely incidental duty of men already overburdened.

In response to the natural question as to how much fuel we expect to save I would conclude by presenting the following estimate. It should be understood as a mere estimate not yet supported by adequate statistics; but it is made with care, is probably conservative, and is based upon a thorough balancing of all the facts stated and implied above.

Present estimates indicate that during the calendar year 1918 United States railroads will use about 175,000,000 tons of coal for all purposes, including both bituminous coal and anthracite. Of this amount about 157,000,000 tons will be consumed in locomotive service and about 18,000,000 tons at stationary power plants and for miscellaneous purposes. In addition, the railroads will use approximately 42,000,000 barrels of fuel oil. Basing our calculations on these totals we estimate that the savings likely to result from our campaign during the period for which it has been under way will be at the following annual rates:

Two per cent saving due to improvement in the quality of coal, or 2 per cent of 175,000,000.....	3,500,000 tons
Three per cent saving on the coal used in locomotive service, or 3 per cent of 157,000,000.....	4,710,000 tons
Ten per cent saving on the coal used at stationary power and heating plants and for miscellaneous purposes, or 10 per cent of 18,000,000.....	1,800,000 tons
Total annual coal savings.....	10,010,000 tons
Two per cent saving on the fuel oil used for all purposes, or 2 per cent of 42,000,000.....	840,000 bbls.

#### DISCUSSION

Following Major Schmidt's paper, Joseph B. Harrington, administrative engineer of the United States Fuel Administration for the State of Illinois, pointed out that the railroads present a different problem from stationary power plants because they extend over such a large territory. This decentralization makes it necessary to use small units at coaling stations, pumping plants and similar points. These are fundamentally uneconomical, due to the equipment and to the types of men who of necessity are employed to operate them. Mr. Harrington stated that in some instances improvements designed to effect economy in the use of fuel had been withheld because it was impossible to demonstrate the economy that would be effected by the individual factor in the equipment. He pointed out the necessity of considering the fuel saving problem in a broad light. Although the results of the various measures cannot be segregated, when all the necessary equipment has been provided the complete plant will give the desired results. Partial installations, however, are not effective. It is not sufficient to plug some of the leaks; they must all be stopped.

Mr. Harrington stated that in his opinion the ultimate



solution of the fuel problem is to make the fuel department one of the major parts of the railroad organization, dignifying it by making the man in charge a vice-president. Coal is handled in such great quantities that the men working on the railroads do not realize its value. The fuel conservation department of the railroads should be established on a permanent basis, as the preventable fuel losses are serious and enormous. It is not so much a matter of learning what to do, but of getting it done. The widespread opinion that large plants are, in general, economical and small plants wasteful has not been borne out by inspection. Some of the larger plants have proved to be in the poorest condition and some of the smallest were very economically operated. Efficiency is more a matter of personnel than of equipment.

F. P. Roesch, fuel supervisor of the Northwestern Regional District, made a plea for the continuation of the fuel conservation movement. The Fuel Conservation Section made a patriotic appeal and received a patriotic response from the railroad men. Since the signing of the armistice, however, there has been a marked relaxation. This is the wrong attitude, for while the war is over the period of readjustment will be a difficult one and unless wasteful practices are corrected this country will not be able to secure what it has gained. Mr. Roesch quoted a statement of Regional Director Aishton that accurate statistics of the fuel consumed would result in greater savings than any other single factor and went on to point out that while great efforts were made to secure monetary savings, the saving of pounds of coal did not make as strong an appeal. For that reason, fuel statistics should be reduced to a dollar and cents basis. Mr. Roesch cited

a few concrete examples of what had been accomplished in saving fuel through the inspection conducted by the regional fuel supervisors. He called attention to the waste due to heating passenger cars during lay-over periods, gave figures showing the cost of steam and air leaks and showed the results secured by feeding the cleanings from blacksmith forges to stoker fired stationary boilers.

L. R. Pyle, fuel supervisor, Central Western regional district, called attention to the fact that the higher officers of the railroads are showing more interest in fuel economy than ever before and are willing to install the needed equipment where improper conditions are brought to their attention. He spoke of the necessity for being constantly on the watch for wasteful practices, and of making recommendations for improvements in writing so they could not be overlooked. To secure the best results, it is necessary to give the enginemen locomotives in good condition and then to show them how to operate them economically. It is not sufficient to apply corrective measures and then pay no further attention to the matter. It takes constant following up to maintain good conditions and to make the improvement permanent.

J. G. Crawford, (C. B. & Q.), spoke of the losses due to improper operation of coal chutes and urged that more attention be given to the handling of coal between the mine and the engine tender. He pointed out that the failure to clean chutes periodically resulted in spontaneous combustion, influenced the consumption of coal unfavorably, and sometimes caused failures due to locomotives being loaded with fine coal that had accumulated for a considerable period at the bottom of the chute.

## Transverse Fissures and Phosphorus Streaks in Rails\*

### New Evidences of the Influence of Segregation and of the Advantage of Reheating Blooms

By G. F. Comstock

Physical Testing Laboratory, Titanium Alloy Manufacturing Company, Niagara Falls, N. Y.

THE SUBJECT of transverse fissures in steel rails has been discussed very thoroughly in recent years from various points of view and the final opinions expressed may be roughly classified into two groups:

- (1) That these fissures are the result merely of fatigue of the steel and are independent of the quality of the metal.
- (2) That the quality of the metal and the mill practice must have something to do with them.

The view that these fissures were due merely to normal fatigue under alternating stresses seemed most reasonable to the writer until quite recently, because, from work done in this laboratory, as well as the work of other investigators of the problem, no structural differences, in the vast majority of cases, were found between metal at the nuclei of transverse fissures and metal at similar positions in the same rails or in other rails that had not developed fissures. Within the last year or two, however, since the method of etching polished sections for the microscope with a cupric chloride solution has been tried systematically on lengthwise sections, passing through the nuclei of transverse fissures, evidence began to accumulate that there was a certain structural peculiarity of the metal associated with these fissures, and very often showing its most distinct development at the nucleus rather than elsewhere in the section examined.

When the use of cupric chloride reagents was discovered and advocated for the detection of phosphorus segregation in steels, and this method began to be applied to longitudinal

sections cut through the nuclei of transverse fissures in rails, it was found in many cases that the most distinct of the streaks shown in this way passed through the nucleus. In some of these rails the streaks were about the same throughout the section examined, but in practically none were they absent or even indistinct. Fig. 1 is a photograph, taken at a magnification of about  $2\frac{1}{2}$  diameters, of two polished microscope specimens etched with the aqueous picric acid solution, which darkens the high-phosphorus streaks. The edges of these specimens show parts of transverse fissures, with the polished sections cutting through the nuclei, and in each case it is plainly seen that the nucleus of the fissure is directly in line with the most distinct dark streak on the polished surface. Figs. 2 and 3 are photomicrographs of the polished surfaces of specimens cut, like those in Fig. 1, through the nuclei of transverse fissures in rails, but etched with cupric chloride. Each of these shows the edge of the specimen at the nucleus of the fissure, and the most distinct high-phosphorus streaks are shown in every case passing directly into these nuclei.

Transverse fissures generally have their nuclei a short distance inward from the surface of the rail section, and it has often been noted that the nucleus will occur at the same distance below the top of the head as the topmost distinct high-phosphorus streak. This streak would, of course, have been subjected to a greater bending moment in service than any streak existing nearer the center of the rail, and hence might be expected to crack first.

The cause of the high-phosphorus streaks is the selective

\*Abstract of a paper to be presented before the American Institute of Mining Engineers, at New York, in February, 1919.

freezing in the ingot, which cannot be avoided by any means now known. The effects of this selective freezing may, however, be remedied or overcome by diffusion in the solid state, which is a very slow process in regard to phosphorus. If longer heating of the solid steel in rail manufacture by allowing more thorough diffusion will decrease the intensity or distinctness of the high-phosphorus streaks, then rails rolled from reheated blooms should show these streaks less distinctly than rails rolled direct from ingots. A more interesting fact in this connection is that out of the few hun-

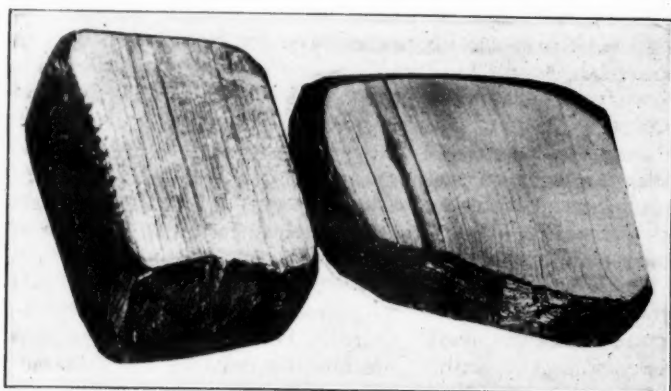
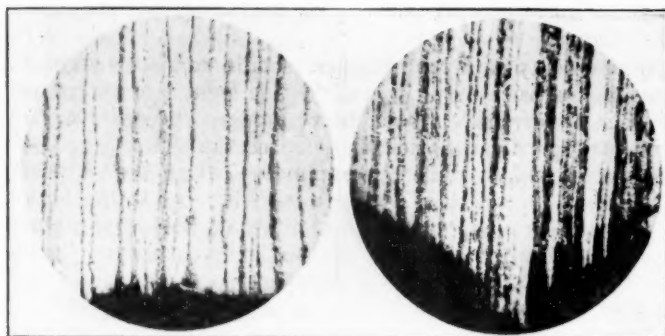


Fig. 1—Two Polished Specimens for the Microscope Etched with Aqueous Picric Acid, Showing Parts of Transverse Fissures on Their Edges and the Most Distinct Streaks on the Polished Surfaces in Line with the Nuclei

dred rails that have failed from transverse fissures on the New York Central Lines, just two of them had been rolled from reheated blooms. If it could be shown, therefore, that rails rolled from reheated blooms had the high-phosphorus streaks less in evidence than direct-rolled rails, a strong support would be secured for the theory that these streaks had some influence on the origin of the fissures.

To investigate this point, samples of rails were secured, some of which had been rolled direct from ingots, and



Figs. 2 and 3—Photomicrographs of Longitudinal Sections of Rails at the Nuclei of Transverse Fissures, Etched with Cupric Chloride, Showing Distinct Streaks at the Nucleus in Each Case

some of which had been rolled from reheated blooms. These were in all 24 transverse-fissure rails and 12 good service samples. The first thing done to each sample was the making of sulphur prints from a cross-section generally within an inch or two of the transverse fissure, provided it appeared on the sample received. These prints were classified as good, fair, poor, or bad, according to the amount of segregation shown.

Sections for microscopic examination were also cut from the heads of all the samples, longitudinally and upright, that is, parallel to the plane of the web and graded with respect

to the presence of alumina, slag inclusions, and the distribution of sulphides, by examination of the carefully polished sections before etching. Data on the amount of free ferrite and cementite were obtained by examination of the sections after etching with the usual alcoholic solution of picric acid.

The samples were next repolished and etched with Stead's cupric chloride reagent, all as nearly as possible to the same degree, and were classified in the same way as the sulphur prints, according to the quality of the metal judged from the distinctness of the streaks shown. Finally the samples were all repolished again and etched for 15 to 20 sec. with an aqueous picric acid solution and graded as before.

CLASSIFICATION OF SAMPLES

In regard to	Grade	Transverse-fissure rails, per cent	Rails that gave good service, per cent	Rolled direct from ingot, per cent	Rolled from reheated blooms, per cent
Sulphur print .....	Good .....	67	58	..	..
	Fair .....	25	17	..	..
	Poor .....	8	..	..	..
	Bad .....	..	8	..	..
Presence of alumina..	Good .....	67	92	..	..
	Poor .....	21	8	..	..
	Bad .....	12	..	..	..
Presence of slag.....	Good .....	75	83	..	..
	Fair .....	8	..	..	..
	Poor .....	13	7	..	..
Distribution of sulphides by microscope	Good .....	21	25	..	..
	Fair .....	50	42	..	..
	Poor .....	29	33	..	..
Amount of free ferrite	None .....	38	..	..	..
	Traces .....	37	58	..	..
	Little .....	25	25	..	..
	Much .....	..	17	..	..
Amount of free cementite .....	None .....	83	100	..	..
	One streak..	13	..	..	..
	Considerable	4	..	..	..
Cupric chloride etching	Good .....	4	33	..	46
	Fair .....	8	25	11	27
	Poor .....	29	17	26	18
	Bad .....	59	25	63	9
Aqueous picric acid etching .....	Good .....	4	25	..	36
	Fair .....	12	33	16	36
	Poor .....	38	9	32	10
	Bad .....	46	33	52	18

In the table these results are all averaged for the rails that failed from transverse fissures and for those that endured good service without failure, in order to get the average classification of each kind of rails with respect to the different characteristics that were examined. The classification of direct-rolled rails was practically the same as that for the transverse-fissure rails, and the rails rolled from reheated blooms were also similar to the good-service rails, so that it did not seem desirable to fill out the last two columns of the table except in regard to the high-phosphorus streaks.

The first six of the aspects of the structure considered in the table give, for the two kinds of rails, classifications that are similar in their general indications, showing that none of these peculiarities could be an important cause of transverse fissures. The last two criteria, however, show a decided difference in the classification figures for the two kinds of rails, and indicate that there is here at least some relation between these aspects of the structure and the formation of the fissures. Thus, while 88 per cent of the failed rails were classed as poor or bad in regard to the high-phosphorus streaks shown by the cupric chloride etching, only 42 per cent of the good service rails were so classed; and the aqueous picric acid etching checks these figures in almost the same way. Comparing the direct-rolled rails with the rails rolled from reheated blooms, the figures are more strongly suggestive, becoming 89 and 88 per cent, respectively, for the sum of the poor and bad classes of the direct-rolled rails after the two methods of etching, and only 27 and 28 per cent for the same classes of the rails rolled from reheated blooms. Here is, then, a clear indication that reheating the blooms in rail manufacture will give a product decidedly more free from high-phosphorus streaks than the direct-rolling process will give, and it has also been shown that



rails can be made, and are made, that are practically free from these streaks.

It is not claimed that reheating the blooms is a sure cure and the only cure for transverse fissures in rails, but the evidence here given supports strongly the contention that segregation of phosphorus in abrupt alternate bands of

almost microscopic size, running lengthwise in the rail head, as an important cause of transverse fissures, and that by reheating the metal from which the rails are rolled these bands may be reduced by diffusion and the tendency toward the formation of transverse fissures may be materially lessened.

## Shippers Are Hostile to Government Ownership

N. I. T. League Convention Brings Out Frank Expressions  
on Future of Railroads; Prouty Speaks

UNDOUBTEDLY THE MOST significant feature of the annual convention of the National Industrial Traffic League, held at Cincinnati, Ohio, on November 20 and 21, was the unanimity of sentiment in opposition to government operation of the railroads. The expression of opinion on this subject had been generally suspended during the period of the war for patriotic reasons, but as the reason for the acquisition of the transportation system by the government has now passed, the first meeting of the League since the conclusion of hostilities was the signal for a frank discussion of federal control and the future of the railroads. It was the sense of the convention that the next year or two will constitute a crucial period in railway history and that the League will have to be on the alert to prevent developments inimical to the interests of shippers and to assist effectively in bringing about a solution of the transportation problem that will prove satisfactory to the public. A resolution offered by the executive committee and unanimously adopted puts the League on record as unqualifiedly opposed to government operation or ownership and provides for the appointment of a special committee to promote legislation necessary to protect the interests of the League if the railroads are returned to their owners. The resolution reads as follows:

WHEREAS, under present legislation the railroads will be returned to private operation within 21 months after the close of the war, and,

WHEREAS, the National Industrial Traffic League is on record as opposing government ownership of the railroads of the country, and

WHEREAS, the executive committee is of the opinion that operation of the railroads by their owners is preferable to government operation, and,

WHEREAS, the executive committee is convinced that before the railroads are returned to their owners for operation additional legislation is necessary in their interests, as well as for the protection of the public,

THEREFORE, we recommend that the president of the League appoint a special committee of nine members, to consider such additional legislation and measures as may be deemed necessary to carry out the spirit and purpose of this recommendation, said committee to report to the executive committee at an early date.

### Judge Prouty Speaks

Next to passing the resolution, the most important part of the proceedings was an address by Judge Charles A. Prouty, director of the Division of Public Service and Accounting of the Railroad Administration. The judge was very enthusiastically received despite the fact that he voiced opinions which were obviously contrary to those held by the members of the League. He stated that the railways had broken down as carriers of war traffic and that the Railroad Administration had been established in order to give the war and navy departments and the War Industries Board the service required to insure the winning of the war. Since the first few months of government operation that service has been rendered, and while the public had to suffer many inconveniences and privations during that period it has not been the duty and business of the Railroad Administration to satisfy shippers and travelers. Now conditions have changed; the pressing need for giving preference to the movement of war materials is past—in fact the emergency on account of which the railroads were taken over by the government is gone.

There are strong arguments in favor of returning the carriers to their owners immediately. In his opinion, however,

certain legislation will be necessary before that event takes place. In view of the existence of a Republican congress and a Democratic administration, there is little prospect of the return of the rail lines before the expiration of 21 months after the signing of peace.

Many governments have tried government operation of railroads and up to date no government which has done it has gone back to private control. There has been considerable complaint regarding government service, but at the same time no disposition to return to private operation. Government ownership achieved a high degree of success in Germany, but what was possible through the autocratic processes in force in that country might not be successful here. The judge stated that he had never been an advocate of government ownership and operation, but had often been curious as to just how it would work out in actual practice. Due to our conditions the experiment of government operation is with us. In order to settle the question of its merits as compared with private operation, it should be given a fair trial under normal peace conditions. A fair trial means a co-operative spirit on the part of shippers and the general public and the absence of obstructive and unsympathetic activities. Up to the present time the duty of the Railroad Administration has been to do things necessary to win the war. From now on the test of government operation will be to serve the public more cheaply and efficiently than the private companies can.

Judge Prouty said that shippers should form their judgments on the basis of services which are legitimate functions of common carriers. In the past shippers have enjoyed a great many privileges which they had no right to enjoy. He cited as an example daily telegraphic reports on the location of cars which were formerly furnished traders who insisted on them. Luxuries of this kind had to be paid for by somebody and naturally would, in the end, come out of the shippers' pockets. Some services, however, which were temporarily suspended on account of the war, will now be resumed. The informative work formerly performed by off-line traffic offices should be done. The Railroad Administration solicits the co-operation of the National Industrial Traffic League in devising a definite plan under which these services may be rendered.

Judge Prouty believes the present committee method of adjusting rates and regulations should be retained as a permanent practice. He favored such a plan some years ago, but the Interstate Commerce Commission was too conservative to take any action in that direction. The plan is now in effect and, he believes, is proving successful. Some criticism has been offered because the shippers' representatives on the various freight traffic committees are not paid for their services. The chief benefits of the scheme are due to the fact that these men are in close touch with the public. If they should receive a respectable compensation for their committee work they would be apt to assume the attitude of bureaucrats and

forget the interests of the shippers. It is hoped that a plan can be devised under which these men need spend only a portion of their time on the committees instead of all, as has recently been the case under the pressure of war conditions.

Judge Prouty concluded his address with a few remarks on specific topics. On the subject of overcharges he said that inasmuch as the Railroad Administration requires the prompt payment of freight charges the least it can do is to repay overcharges promptly. There is no excuse for a delay of months in the payment of overcharges which is common on some roads. If he continues in his work for two years more, the judge says there is one thing that will be done—overcharges will be promptly repaid.

With reference to embargoes, he said that he had always been a believer in handling congestion at the point of origin, but that he thought that the time has arrived to embargo the man who fails to unload promptly and not penalize a whole region on his account. He also said that he believed shippers should be advised promptly of embargoes.

On the subject of revenues, the judge stated that it was likely that the Railroad Administration would face a deficit of about \$200,000,000 at the end of the year. He believed, however, that from now on the operating revenues would commence to increase. He expressed the opinion that if the railroads had not been taken over by the government, every one of them would now be in receivers' hands. There is not a public utility except the railroad companies that has not lost money in the last 10 months.

#### Report of Freight Claims Committee

J. M. Belleville, general freight agent of the Pittsburgh Plate Glass Co., Pittsburgh, Pa., and chairman of the freight claims committee, read the report of that committee. He said that replies received from the members of the League in response to specific inquiries on the subject, indicated that there has been a general lack of courtesy and promptness in the settlement of claims by the railroads. He stated that he had a conference with J. H. Howard, manager of the Claims and Property Protection Section of the Railroad Administration and that Mr. Howard promised to stir up the railroads and force a settlement of old accounts, if the shippers would send him lists of the claims. Mr. Belleville said that express claims were even in a worse condition than railroad claims and that current express claims especially were accumulating. He stated that, on behalf of the League, he had urged the American Railway Express Company to take some effective action regarding them.

With reference to the standard form for the presentation of freight claims, he stated that Mr. Howard had modified his order making the use of them mandatory, to the extent that the shippers' present supplies of forms may be used until exhausted. At Mr. Belleville's request, C. E. Childe, manager of the traffic bureau of the Commercial Club of Omaha, related the substance of a conversation with Mr. Howard. A part of the standard form provides that the shipper certify that his statements are correct. The Railroad Administration intends to pay claims to responsible shippers on this certification with no checking except a finding that the shipment involved was received in good order and delivered by the road in bad order. With the establishment of this practice, it is expected to pay such claims within 90 days after filing. If it is later found that the representations by the shipper were false, the Railroad Administration will prosecute for fraud.

Regarding the so-called "John Barton Payne" rules covering concealed loss and damage, Mr. Belleville said that they were only tentative and not official. Despite that fact, freight claim agents and particularly those on western lines have been refusing to recognize loss in bulk shipments in connection with which there is no record of bad order in transit. Mr. Belleville called attention to

Circular No. 1 recently issued by Mr. Howard instructing all railways to settle claims strictly in accordance with their legal liability. This circular, he said, showed conclusively that the Payne rules were not official and that their observance by railroads was illegal and improper.

Mr. Belleville stated that a large number of members of the League had complained that railroads are returning claims to claimants, declining to act upon them because of the expiration of the two-year and one-day period within which suit for recovery should have been brought in accordance with the terms of the bill of lading. This action has been taken, although the claims had been filed with the carrier within the statutory time and their settlement had been delayed by the neglect of the railway freight claim department until the expiration of the two years and one day period. He stated that it was the opinion of the committee that the action of the railroads in availing themselves of this technicality is unjust and unreasonable and that the League should communicate with the director of public service and accounting of the Railroad Administration, asking that all freight claim agents be instructed that claims for loss and damage to freight shall be settled upon the merits of the claims without recourse to a technicality, for the existence of which the carriers themselves are responsible.

The chairman of the committee also called attention to numerous complaints by members regarding the failure of railroads to make reports to shippers of shortages found to exist at the first break bulk point under shippers' seals, and shortages found in ferry cars handled under shippers' seals. Mr. Belleville stated that it was the opinion of the committee that it is the duty of the railroads to report promptly to shippers all shortages found either at break bulk points or at distributing points for ferry car shipments and that the League should instruct a committee to take up the question with the proper authorities of the Railroad Administration.

The report of the freight claims committee was approved and the recommendations it contained were acted on by the passage of appropriate resolutions. A resolution was also passed protesting against the deduction of a two per cent cash discount by carriers in the settlement of claims—a practice initiated through instructions by the general counsel of the Railroad Administration—unless settlement for the claim is made within the discount period observed by the shipper in his transactions.

#### Report of Committee on Demurrage

The committee on car demurrage and storage, F. B. Montgomery, chairman, reported that the Interstate Commerce Commission has approved a conference ruling agreed upon by the League committee and the Committee on Relations of the American Railway Association, which would make it possible for public elevators, warehouses or compresses to include in their average agreement accounts, cars consigned to or handled by them.

With regard to the proposed establishment of demurrage bureaus throughout the country, the committee reported that it believed the League would be successful in placing shippers' representatives on these bodies.

On the subject of the recodification of demurrage rules, it was reported that the committees had conferences on this question with the Committee on Relations of the American Railway Association and with the Interstate Commerce Commission.

The chairman reported that there is considerable demand by shippers for the application of the average agreement to outbound shipments and for a reduction of the present standard of demurrage rates. The committee has notified the Committee on Relations of the American Railway Association that these two matters will be taken up at the next joint meeting of the two bodies.



In the general discussion of the report it was announced that the American Railway Association has agreed to consider November 11, the date of the peace celebration, as a free-day, thereby cancelling any demurrage charges which may have accrued at that time.

#### Committee on Rate Construction and Tariffs

Frank E. Williamson, traffic commissioner of the Buffalo (N. Y.) Chamber of Commerce, presented the report of the committee on rate reconstruction and tariffs of which he is chairman. He called attention to the interpretation by the railroads of General Order 28, on the basis of which they are exacting excessive minimum charges on short road hauls and switching. Judge Prouty was later questioned regarding this matter and stated that the order was not intended to cover switching services, and such charges which had been made on the basis of the false interpretation of the meaning of the order, should be promptly refunded as overcharges.

Mr. Williamson also stated that his committee had received a number of complaints from members stating that railroads are refusing to furnish tariffs to shippers free of charge. Luther M. Walter, assistant to the director of the Division of Public Service and Accounting, who was present at the meeting, stated that if shippers failed to secure them after complaining to the district freight traffic committees, he would personally see to it that they received tariffs, provided the applicants were *directly* interested in the issues desired.

#### Report of Executive Committee

The executive committee reported that a proposed uniform telegraphic code for use by shippers and carriers in tracing freight, etc., thereby effecting economy of time and money as well as telegraphic service, is now being worked out in detail by the Car Service Section of the Railroad Administration.

The proposed withdrawal of exceptions to the various classifications brought out considerable discussion which indicated that the sentiment of the League is that such action will lead to the complication of tariff publications. A resolution was accordingly adopted putting the League on record as having a pronounced preference for exceptions to the classifications in lieu of the commodity rates which are proposed to take their place.

The baggage committee submitted a progress report giving detailed information regarding the steps being taken to establish a joint uniform baggage tariff, and the efforts being made by the American Railway Association to have the national code of weighing rules adopted by the railroads not now using it, namely, the Trunk lines and the New England lines.

The committee on railroad leases and side track agreements reported that it is still endeavoring to have the liability in these contracts modified so that the user of a side track or the lessee of railroad properties will not be responsible for conditions not under his control. It is pointed out that some agreements put the responsibility on the lessee for what is nothing more nor less than the negligence of the carriers themselves. The committee suggested that members refuse to sign contracts which impose unreasonable liabilities upon them.

#### Report of Express Committee

W. H. Chandler, chairman of the express committee, stated that the proposed increases in express rates would provide the American Railway Express Company with twice as much revenue as it required. He stated that the present unified express service was not good, but admitted that this was probably due to the fact that the government had commandeered a large amount of the express equipment, a large traffic had moved via express which should have moved as freight, and the express company had been required to employ a large number of green men. In response to complaints from members, he recommended that they insist upon pay-

ments of claims up to the value declared. He called attention to Rule 19 of the official express classification which states specifically that express companies are liable up to the value declared.

There was considerable uneasiness evident in the meeting regarding the purpose and effect of the proposed mileage scales for southern and western territories. With reference to this subject, the president of the League stated that he was assured by the director of the Division of Public Service and Accounting that the Interstate Commerce Commission would hold hearings on the scales and that shippers would have every opportunity to present their views regarding them.

R. D. Sangster, chairman of the bill of lading committee, presented a progress report. With reference to the proposed establishment of railway collection bureaus throughout the country, he recited the experience of shippers with the bureau at Kansas City, which has been in existence for a number of years. While there seemed to be general approval of the bureau plan in theory, it has been found that in practice it tends toward delay in the settlement of bills and creates considerable dissatisfaction because of the arbitrary manner in which the bureau performs its work. The subject of collection bureaus was recommitted to the committee for further investigation.

Under new business, a motion was offered and passed requesting the officers of the League to urge the various regional directors to put into effect the practice of advising consignees of changes in routing recently adopted in one region, and to extend the practice to the extent of giving the information to shippers also.

A resolution was also adopted requesting the Railroad Administration to establish rates for inland waterway traffic which will bear a proper relation to existing rail rates, and joint rail-and-water rates which will give the shipper served only by a railroad, the opportunity of taking advantage of water service.

#### Election of Officers

G. M. Freer, president of the National Industrial Traffic League for the past three years, was unanimously re-elected. R. D. Sangster, traffic commissioner of the Commercial Club of Kansas City, Mo., was elected vice-president to succeed W. H. Chandler, and O. F. Bell, traffic manager of the Crane Company, Chicago, was re-elected secretary-treasurer. The following honorary vice-presidents were elected: Paul M. Ripley, traffic manager of the American Sugar Refining Company, New York; H. W. B. Glover, traffic manager of the Southern Cotton Oil Company, Richmond, Va.; W. W. Ingalls, Jr., traffic manager of Penick & Ford, New Orleans, La.; W. H. Chandler, manager of the transportation bureau of the Boston Chamber of Commerce, Boston, Mass.; Seth Mann, attorney and manager of the traffic bureau of the San Francisco (Cal.) Chamber of Commerce; J. A. Morgan, traffic manager of the Houston (Tex.) Chamber of Commerce, and Bruce Terbush, traffic manager of the Stone-Ordean-Wells Company, Duluth, Minn.

#### The Annual Dinner

Among the speakers at the annual banquet were Luther M. Walter, assistant to the director of public service and accounting; P. F. Finnegan, traffic manager of the Baltimore & Ohio, Western Lines, and until recently assistant to the director of the Division of Traffic of the Railroad Administration; C. W. Galloway, federal manager of the Baltimore & Ohio, Western Lines, and H. C. Barlow, traffic director of the Chicago Association of Commerce. Mr. Walter voiced the opinion that one of the greatest benefits derived from our war experience is the co-operative spirit which actuated carriers and shippers alike in handling the transportation problems. He believes that the solution of the railway question lies in an extension of the co-operative practices of the last ten months.

Mr. Barlow enumerated three important transportation problems, one of which has been solved and two of which are yet unsolved. In ancient times there were no limitations on the movements of men until the institution of private property was created. The blocking of highways through the ownership of land resulted in a clash of interests which was solved by the monarchs of those times by the creation of royal highways accessible to all. Since that time the public highway has been an established institution of society. The two remaining problems concern transportation under modern conditions, both on land and on sea. The freedom of the seas is a question which will require satisfactory settlement to permit the freest development of commerce between nations, while the problem of more immediate and local concern is how to regulate a private institution doing a public service—namely the railroads—to the best interests of all.

Mr. Finnegan stated that many of the complaints directed against the Railroad Administration during the period of the war were unjustified. He cited Pullman service as an example. Previous to the war there were 2,700 Pullman sleepers in operation in the United States. Of these, 2,100 were commandeered by the government, leaving only 600 to serve civilian travellers. It was, therefore, not surprising that many railroad patrons were required to climb into upper berths. He predicted that many practices common under former competitive conditions would never return. He stated that prior to January 1, 1918, he got a lot of pleasure out of sending a carload of freight from Chicago to New Orleans, La., via Columbus, Ohio and Cincinnati, back to Cairo, Ill., and then on to destination. Roundabout routing of that character, he thinks, is a thing of the past. It is estimated that of all l. c. l. traffic, 90 per cent requires two or more transfers between the point of origin and destination. This is a condition which is not conducive to economical operation and will undoubtedly be remedied. He prophesied that the exports in the next five years will be exceptionally large and that if export shipments are to be handled expeditiously and without congestion, shippers must get over the idea that New York is the only port.

Mr. Galloway stated that the patriotic spirit which pervaded not only railroad men but shippers and the general public, greatly aided in solving the transportation problem during the war. As an illustration of the operating achievements of the railroads, he cited the troop movements in and out of Camp Sherman, Ohio. This camp which is on a single track line was filled three times and emptied twice. Each time that troops were moved from the camp, 61 special trains were operated, involving 450 sleeping cars. The trains arrived at camp and were despatched ahead of time until the commanding officer insisted they not be moved until the scheduled time of departure.

## Railway Business Association

**T**HE PROBLEM of what type of customer the furnisher of railway supplies is to deal with in the future," is the general subject announced to be dealt with at the tenth annual meeting of the Railway Business Association at Hotel La Salle, Chicago, on Thursday, January 9, morning, afternoon and evening.

Alba B. Johnson on that occasion will appear for the first time as presiding officer. He is expected to devote his opening address at the first business session to the internal affairs of the organization and at the dinner to deliver an address upon the public aspects of the policies affecting railways which he advocates.

The other speaker scheduled for the dinner is John Barnes of Milwaukee, who was first chairman of the Railroad Commission of Wisconsin, afterward a member of the highest Wisconsin court, and now general counsel of the Northwestern Mutual Life Insurance Company. Judge Barnes's subject will be "Future of Our Railways."

The organization of the Association which resulted from the convention last April is reflected in a more complex program at the business sessions than formerly. The following committees will present reports at the morning session:

Finance and Administration—H. H. Westinghouse.  
Government Purchasing Policies—A. L. Humphrey.  
Railways After the War—W. W. Salmon.

The announcement of the meeting lays stress upon the hope of the general executive committee that members having motions, resolutions and inquiries will where feasible submit them in advance, or at the business sessions, so that they can be considered by standing or convention committees. An opportunity will be given to the sponsors of proposals affecting scope, policy or method to be heard before the convention committee on resolutions.

It is planned to make the attendance distinctively one of railway supply men. Members are urged to invite representatives of non-member companies to attend all the sessions and to be their dinner guests. All those attending will be luncheon guests of the association. Business dress is suggested for the dinner, which will be short and comparatively simple. After careful consideration the general executive committee was convinced that under existing conditions it would not be feasible or appropriate this year to invite railway officers whether they are now serving the United States Railroad Administration or are still officers of their respective corporations; and in order that there may be uniformity in that respect members who in past years have entertained railway officers at association dinners in New York have requested the committee to announce the understanding that all members are to refrain from giving such invitations.

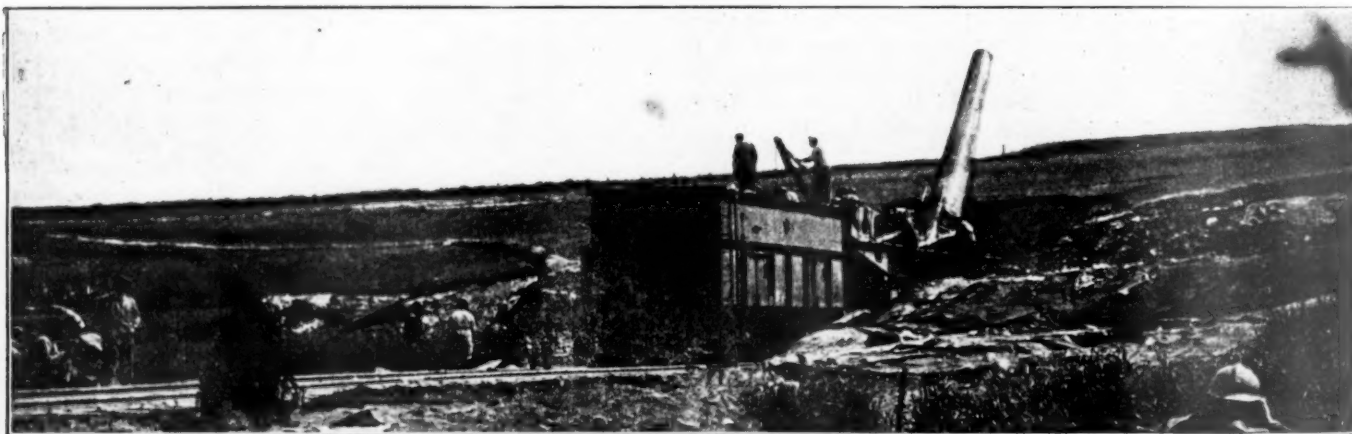
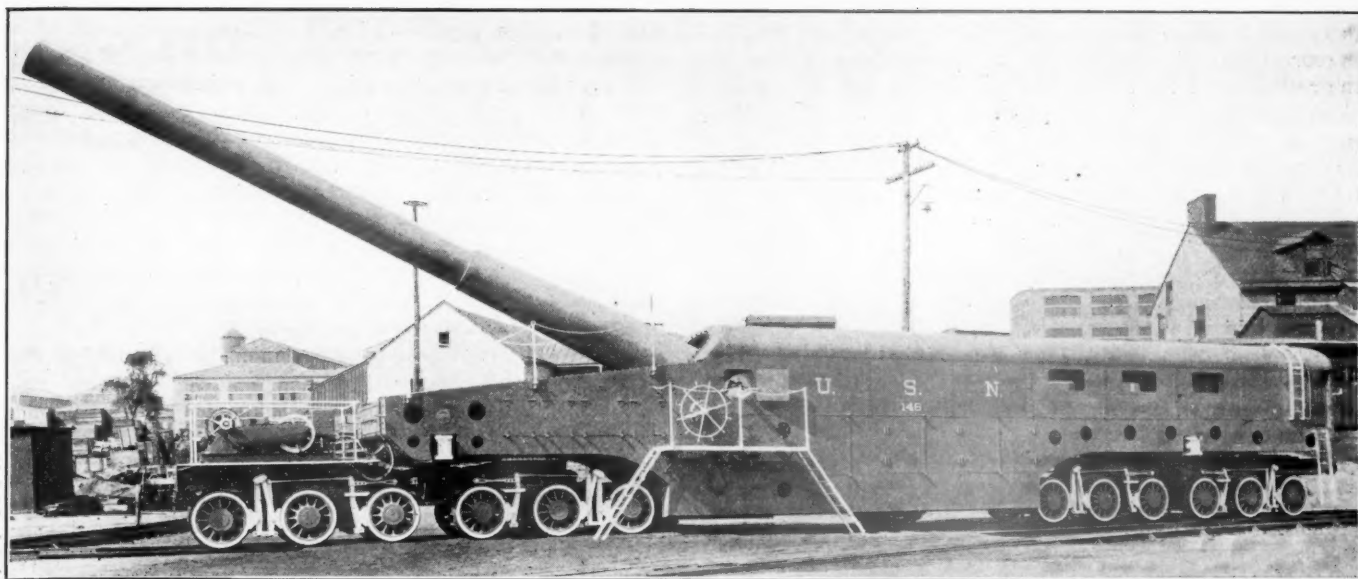


Photo by Central News Photo Service, N. Y.

Type of French Gun That Was Used Against Fortresses Guarding the City of Metz





14-Inch Gun on Railway Mount

## Railroad Men Man Mobile Battery for Navy

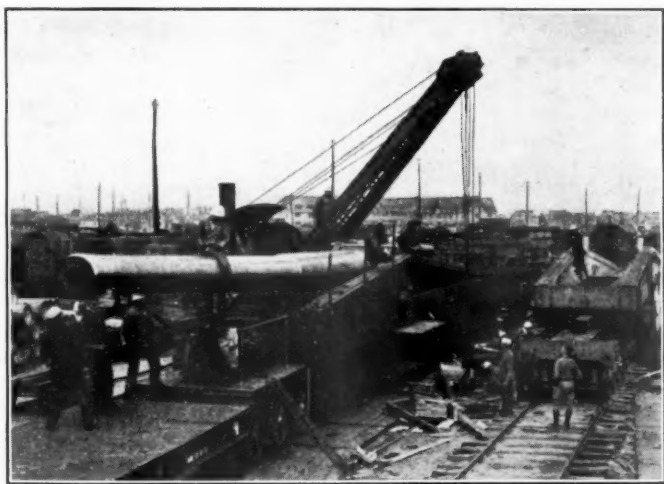
Fourteen-Inch Guns Placed on Railway Mountings Worked  
Destruction Back of German Lines

A CONSIDERABLE AMOUNT of publicity has been given to the service of railroad men with our Army abroad, but it is not generally known that a considerable number of railroad men have had an active part in one of the important activities of the Navy. In the *Railway Age* of November 1 there was published a statement by Secretary of the Navy Daniels giving a general description of the batteries of 14-inch naval guns placed on railway mountings in such a way that they can be moved almost anywhere on railways

Naval Training Station. From these same men were drawn the crews which operated and manned the gun trains in France.

It is now possible to publish a more detailed description of these gun batteries, which were completed in time to work considerable destruction back of the German lines before hostilities were brought to a close. Each of the batteries, of which several have been put in service, consists of a 14-inch, 50-caliber naval rifle carried on a special railway mount, together with a locomotive and ammunition and auxiliary cars, which form a complete self-sustaining unit designed to operate either from railway tracks or from a pit foundation, individually or in conjunction with several similar batteries. The gun car shown in the illustration consists of two main longitudinal girders, fabricated of steel plates and structural shapes and provided with suitable transverse stiffeners, mounted on two front and two rear six-wheel trucks. A housing is provided at each end of the girders for the forward and rear jacking beams used when raising the car on its foundation. Somewhat forward of the center of the car is a transom casting against which the transom bedplate bears when the car is jacked up over the foundation. The transom is rigidly fixed to the gun girders and is designed to transmit the stresses incident to firing to the transom bedplate. Secured to the inboard sides of the girder immediately above the transom are two deck lugs which support the gun. The entire mount is covered with armor plate, 1,600 square feet of plate being required. The gas engine connected with an air compressor and a winch for operating the gun mechanism and to draw the car back to its original position when firing are mounted on the forward truck.

Firing is accomplished from positions on a track laid in the form of a complete circle of a radius not less than 500 feet. This arrangement provides unrestricted latitude for training the gun and is used for elevation of the gun up to 15 degrees, which gives a range up to 24,000 yards. If greater range and elevation are desired it is necessary to set the car on a foundation over a pit. The rails and ties are taken up for the distance required to construct the pit and foundation and



Erection Work in France

in France, which have been in action at the front since September. These batteries were constructed in this country, shipped to France and there erected and equipped for service under the immediate direction of Lieutenant-Commander D. C. Buell of the United States Navy Bureau of Ordnance. Mr. Buell is well known to railroad men in this country as director of the Railway Educational Bureau of Omaha, Neb. A force of over 200 former railroad employees was selected by him from among the enlisted men at the Great Lakes

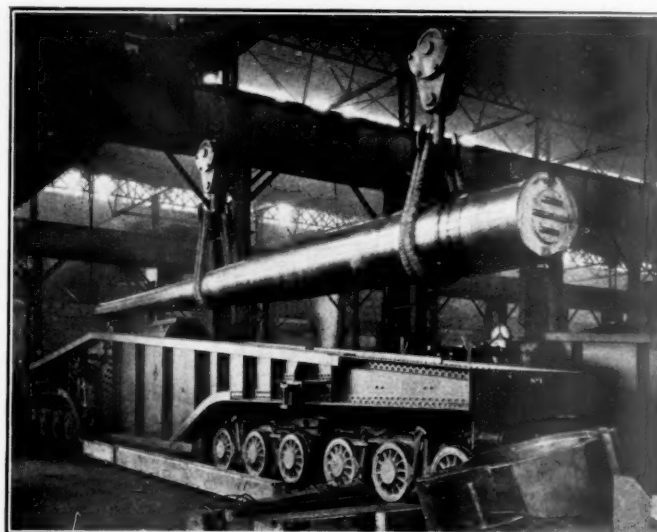
the recoil is taken into the pit. When firing from the track the recoil is absorbed by the car as it travels backward against the resistance of the tightened brakes. The gun may be fired at any angle from 10 degrees to 43 degrees. Each battery unit is provided with supplies and repair parts, augmented by stores and equipment carried on a staff train. A single unit consists of one locomotive, one gun car, two ammunition cars, one construction car, one construction car with crane, one sand and log car, one fuel car, one battery kitchen car, three berthing cars, one battery headquarters car, one battery headquarters kitchen car, and one workshop car. The locomotives, as well as the cars, although specially built for the Navy, are of the standard types used by the American Expeditionary Forces, designed to conform with the requirements of the French railways, and the fittings for the most part are standard naval fittings.

The gun car is usually attached to the end of the train, which is made up so that cars may be dropped off in the most convenient order in the vicinity of the gun's position. If pit firing is necessary the construction cars are brought to the site selected, where they are used to handle the timbers and steel framework employed in the foundation. The gun car is pushed over the completed foundation, the truck wheels are locked by brakes and the weight of the car is transferred to the foundation by means of jacks and lifting screws. During action the ammunition car is brought to the rear of the gun car. Shells are conveyed to the breach by a monorail crane in the ammunition car and a shell tray mounted on a truck in the gun car.

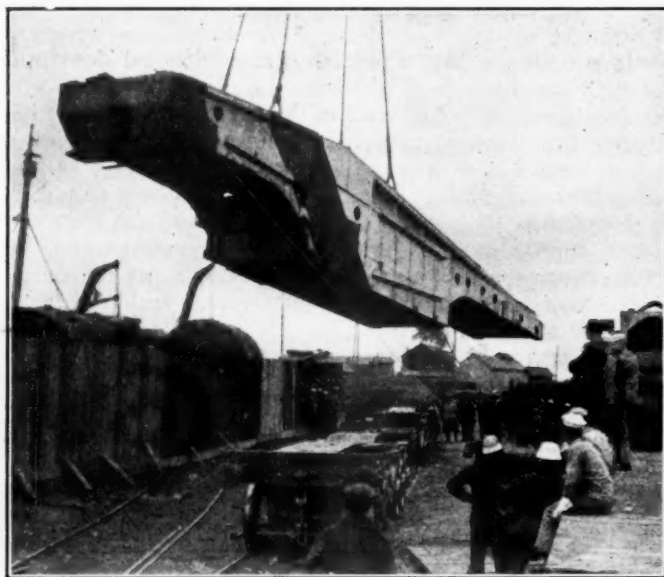
In addition to the officers and crew necessary to the operation of the guns, additional medical and engineer officers and a crew detailed to transportation work that may be allocated

a flat car with portable sides and ends forming a bin for erection material. A 10-ton pillar crane is mounted at one end over the truck. The fuel car is a standard box car divided into compartments by partitions. One-half of the space is used to carry fuel and the other for cement and wood for building a foundation. The workshop car is a box car with one end partitioned off for a storage room for oil. The berthing cars are box cars fitted with seven tiers of folding berths, three berths in a tier. Battery headquarters car is a standard box car suitably partitioned and equipped, as is the kitchen car.

The advantage of this type of battery consists of its freedom from the difficulties associated with auxiliary power-driven accessories and from dependence on a supply base.



Gun Ready to Be Placed in Slide of Railway Mount



Lowering the Girder Onto the Trucks

among the various batteries as circumstances require is accommodated on a staff train. The staff train consists of one locomotive, one staff headquarters car, one staff kitchen and dispensary car, one spare parts car, one staff construction car, one staff workshop car, one staff auxiliary car, and one staff berthing car.

The locomotive used is of the Consolidation type used for the American Expeditionary Forces and was built by the Baldwin Locomotive Works. The various gondolas, flat cars and box cars were built by the Standard Steel Car Company in accordance with American car construction practice and designed to conform to the operating standards of the French railways. The ammunition car is a standard steel frame box car covered with bullet-proof steel. The construction car is

Except the air compressor and winch, the mechanical functions of the battery are performed solely by hand power. The guns used throw a heavier projectile and have a greater muzzle velocity than any previously placed on a mobile shore mounting. The removal of the gun from over the pit foundation and its restoration to complete mobility represents the work of but a few minutes.

The plan of utilizing 14-inch guns by placing them on railway mountings for land service was recommended to Secretary Daniels by Rear Admiral Earle, chief of the Navy Bureau of Ordnance, on December 26, 1917. The plans and specifications for the gun were prepared under the supervision of Capt. A. L. Willard and Commander H. Delano at the Naval Gun Factory, Washington, and the construction was under the direction of Capt. T. A. Kearney and Lieutenant-Commander L. B. Bye of the bureau. It was considered that the success or failure of the plan hinged upon speedy delivery and the results represent an important record in the achievements of the Navy. When Mr. Buell was in Washington last February to offer his services in connection with the railway fuel conservation campaign he happened to meet the assistant chief of the Navy Bureau of Ordnance, who told him that a railroad man was needed to supervise the construction and later the erection of the gun batteries and asked him to volunteer his services. Before the day was over he had been enrolled in the Navy as a lieutenant. He was allowed four days in which to arrange his business affairs at Omaha before reporting at the plant of the Baldwin Locomotive Works at Philadelphia as naval inspector of ordnance in full charge of the construction work of the expedition. He was later promoted to lieutenant-commander in recognition of his services in expediting the work.

Designs had been completed on January 25, bids were



opened on February 6, and rejected on account of delivery dates, new bids were called for and opened on February 13, and the contract was signed the same day. The Baldwin company's contract called for delivery on June 15. The first gun was completed and moved to the Sandy Hook proving ground on April 25, only 72 days from the date of the opening of bids. The last gun was finished and delivered May 25, 21 days ahead of Baldwin's schedule, and all cars and special equipment were delivered by the Standard Steel Car Company for shipment on June 1, 100 days from the date that bids were opened and 155 days from the time that the project was first considered. There was practically no change in designs during the construction and the material was obtained and fabricated without interference with other projects, largely as a result of the personal interest and co-operation of S. M. Vauclain, vice-president of the Baldwin Locomotive Works.

While the entire expedition was ready for shipment by June 1, the beginning of the German drive caused some uncertainty as to the port in France to be used, and the first ship left on June 20, arriving at the port in France on July 8. Other ships carrying the material arrived later in the month. The locomotive and car erection in France was done at the shops and yards operated by the Nineteenth Engineers (Rail-

way), and although carried on under considerable difficulties was greatly assisted by the co-operation extended by the railroad forces attached to the army, particularly by General Atterbury and by Major McDonough of the Nineteenth Engineers. There were many interesting experiences connected with the work of erection in France. The first gun train was completed and ready to leave for the front on August 11, 12 days after the gun girder had been unloaded, and the last train was completed and left for the front on September 21. The first gun was fired against the Germans on September 5, less than 250 days from the time the project was first thought of.

The men who were to work and man the batteries had been assigned to the various manufacturing plants in the United States during the construction in order that they might be familiar with the equipment and it was necessary to accomplish the entire erection without blue prints, which failed to arrive on time. The railroad crews for each gun train consisted of an engineer, fireman, engine switchman, conductor, brakeman and flagman, machinists and machinists' helpers, boilermaker and boilermakers' helper, and a car man and car man's helper. The railroad crew on the staff train was similarly organized, but in addition included a round-house and emergency gang of 20 men.

## Press Comments on McAdoo's Retirement

### In General There Is Appreciation of His Work But Not Agreement on Reasons for Resigning.

[NEW YORK HERALD.]

THE UNSCRAMBLING of the big eggs—the restoration of the gigantic railway system of the country to private control is now in order. \* \* \* If the problem of restoring the roads to their owners with earning power and efficiency unimpaired can be successfully solved, the country will be spared the enormous additions to the national debt, the owners of the roads will be happy—notwithstanding the government's temporary guarantee of earnings will terminate—shippers will be pleased to return to the old order of things and the public mind will be relieved of the fear of government ownership, with all the danger political and social this would imply.

[KANSAS CITY STAR.]

Secretary McAdoo has impressed the country as an executive of remarkable ability. \* \* \*

In assuming the direction of the railroads while at the same time acting as head of the treasury, he undertook more than it was possible for any one man to do. As one of his friends expressed it in conversation last spring, he was necessarily in the hands of his subordinates. He was in no position to give independent judgments on puzzling questions of policy.

In view of the overwhelming task that was put up to the railroads it is difficult to appraise the success of the Railroad Administration at this time. Evidently many hampering restrictions were swept away, and the situation was gradually cleaned up. Mr. McAdoo dealt with the questions vigorously and with no lack of courage.

[NEW YORK WORLD.]

The resignation of William G. McAdoo from the offices of secretary of the treasury and director general of railroads ought to find a sufficient explanation in impaired health and strength. \* \* \*

That Mr. McAdoo has filled them with great and grow-

ing ability will hardly be questioned anywhere, and it is doubtless not going away from the truth to say that he has found them beyond his strength. The President's characterization of his service in both posts as "distinguished, disinterested and altogether admirable" will be generally accepted as no more than merited.

[NEW YORK TRIBUNE.]

The country will unanimously regret the retirement of William Gibbs McAdoo, secretary of the treasury and director general of railroads. \* \* \*

His going is a catastrophe for the Wilson administration.

[BOSTON TRANSCRIPT.]

In the event that Mr. Wilson does not demand a third term in 1920 Mr. McAdoo might well be his chosen successor as the Democratic nominee. By leaving the treasury and relinquishing his other responsibilities as director general of railroads at this time Mr. McAdoo is spared the necessity of floating additional war loans, collecting additional revenue and prolonging governmental operations of transportation facilities in the difficult days ahead.

[BOSTON HERALD.]

He has always had a passion for playing with big figures. Never in the history of the world did a man fall into an opportunity to do just that to the extent which became his when the United States undertook the financing of the allies and the raising of its own colossal war revenues. Much the same has been true of his management of the railroads. He has dealt in large units. He has spent money lavishly. He has moved toward large things.

Such men invariably find the task easier with an incoming tide than with an outgoing one. They inevitably make the job a little harder for their successors than it has been for them. They usually reach a stage where they like to turn the entailments over to somebody else. In saying that we

have no purpose to disparage Mr. McAdoo. To him the country owes a great debt of gratitude.

[NEW YORK TIMES.]

To these herculean tasks [as secretary of the treasury] of war-time there was added the direction of all the railway systems of the country, and again his great abilities, his sagacity in the choice of assistants, and his marvelous industry and untiring devotion to duty were manifested.

[ALBANY JOURNAL.]

But the administration had in mind only to make an attractive showing of results of government control. As means to that end were employed a salaryless director general, reduction of salaries of railroad officials, and increase of charges for the services of the railroads.

Now, as soon as he can decently do so, the director general "gets out from under," right after control of the express companies has been added to the duties of the position. The expert railroad officials whose salaries have been cut are sticking to their work.

[HARTFORD COURANT.]

In lifting the railroads to a higher degree of efficiency, Mr. McAdoo has had two powerful levers that the managers of the roads under the old condition were unable to use. He has boosted freight and passenger rates to unheard of figures and he has consolidated them in a way that would have horrified the Interstate Commerce Commission and the trust "busters" in the days before the war. Even with these powerful and most useful instruments in his hand, it is doubtful if Mr. McAdoo has increased the country's railroad efficiency except in respect to the government business, and he has failed to make them pay. There is some fear when he and his successor are through with them, if they do get through, the roads will be in worse physical condition than when he took hold.

[RALEIGH NEWS AND OBSERVER.]

Equally as great, and if anything greater, has been the work of Secretary McAdoo as head of the Railroad Administration. In this capacity there was displayed the same genius for organization and co-ordination that has been characteristic of the retiring secretary in all of the high and responsible duties which in the course of a comparatively short but exceedingly strenuous career he has been called upon to perform. There was opposition to government control of railroads and secret efforts undoubtedly were made to make it odious and unsuccessful. But under McAdoo's wise and forceful leadership this new venture in governmental policy was made to serve the purpose for which it was adopted—the utilization of the nation's transportation facilities for the prosecution of the war—and despite increased passenger and freight rates the policy is now so firmly entrenched that it is certain the country will not go back to private control without widespread opposition.

[NEW YORK TIMES.]

It is time for the people of the United States to take serious note of this evident drift toward government ownership at Washington and to determine whether they want it to go further. The question is not new, it has been under discussion for many decades. Examples of government operation of railroads in other lands have been cited both by those who approve and those who oppose the principle, the latter having much the better of the argument so far as the cost and quality of the service are concerned. The people of the United States have for some months had experience of government operation of the railroads. While it would not be fair to base conclusions wholly upon a demonstration carried on under the unusual conditions of war, the people do know that under government control accommodation has been

restricted, the cost of service has been greater; and while charges have been raised, the taxpayers must make up deficits that have nevertheless accrued.

[NEW YORK COMMERCIAL.]

As director general of transportation, Mr. McAdoo displayed the courage of his convictions. His first act was to treat the Sherman law and the Interstate Commerce Act as scraps of paper. He pooled traffic and raised freight rates to cover cost of maintenance and operation. He had the backbone to tell the truth and the wisdom to put the transpor-



Ding in the New York Tribune

### Leaving a Job Or So

tation systems of the country on a business basis. It would be interesting to hear what he really thinks of government control and operation of railroads and other public utilities.

[NEW YORK EVENING POST.]

(By David Lawrence.)

President Wilson is himself so strong an advocate of frankness in public business and politics that he will not mistake the sincerity of purpose and disinterestedness of his many friends who believe that he is face to face with a crisis in his own career both as the leader of the democratic party and the representative of America at the peace conference. \* \* \*

Fourth, they believe that Mr. Wilson's Cabinet is superannuated, and in a rut, and that the resignation of William Gibbs McAdoo deprives the administration of one of its most efficient public servants, and that the President should have never permitted him to resign until after reconstruction was well under way, or at least Mr. Wilson had returned from Europe. \* \* \*

The revolt inside the democratic party is not of recent origin but has been growing for several months, and may explain the lukewarm activity of many democratic national



committeemen in the recent election, many of whom felt a large part of the republican criticism of the record of the democratic congress was absolutely true, and that it was useless to try to make the people think otherwise.

[NEW YORK SUN.]

It cannot be said that a rounded achievement marks the present moment as the appropriate time for retirement. The war is virtually over, but much of the financing of the war, the success of which up to date has been due in so large a degree to Mr. McAdoo's sagacity and energy, is by no means over. Some of its hardest problems are ahead. The same thing is true with regard to the immeasurably difficult and complex questions involved in government control of transportation, an experiment in which the director general of railroads has so often expressed his surpassing interest and for the undertaking of which he may properly be considered as largely if not chiefly responsible. The test of that momentous experiment and the problems of its continuance are ahead, not behind him as he takes leave of it and relinquishes the vast power his office gives him to determine and shape its future course.

[PHILADELPHIA PUBLIC LEDGER.]

It is therefore proper and timely for the owners to take the initiative, as they are preparing to do, to ask the federal government for an early announcement of its policy. Does it



Ding in the New York Tribune

#### That Wage Problem Again

still regard the war emergency requires a retention of control, or does it intend to maintain that control as long as possible to demonstrate a theory of government ownership? If the latter, the federal authorities cannot be too often or too insistently reminded that they have as yet no mandate from the people for such a policy. And they must realize that the problems involved in relinquishing control are going to be far more difficult than any encountered in the taking over of

the roads. Changes have been made in the direction of greater efficiency of operation, in the elimination of duplicated service and waste, etc., which the public will be unwilling to see undone.

[WALL STREET JOURNAL.]

There are stormy days ahead for the administration. Mr. McAdoo passes the menacing railroad labor problem to others for solution. Washington has demanded power unprecedented in our history, but has not always seen that responsibility of the gravest kind goes with it. How strict an accountability can be exacted by the people of what is still a democracy remains to be seen. It is at least some comfort in the difficult days before us that the present Congress has only three more months to live. Mr. McAdoo will have an admirable strategic position on the outside, looking in.

[SPRINGFIELD REPUBLICAN.]

The future of the railroads, like the future of the wire systems, must be determined with the larger public interest in view. The Association of Owners of Railroad Securities, which has just announced an aggressive policy, backed by a formidable array of counsel, to force the early return of the railroads to their owners, seems to be wholly reactionary in its spirit. \* \* \*

But even pocket interests do not run together consistently. The early restoration of pre-war conditions of competition and of rate making by the Interstate Commerce Commission might not prove favorable to railroad dividends in the cases of all companies. There would still be strong roads and weak roads affected alike by blanket decrees of the rate-making power. And roads would be required to compete although possessed of no power to fix the price of what they had to sell. It is not surprising that some railroad security holders today prefer, in their own interest, indefinite operation by the government with a guaranteed compensation.

[PROVIDENCE JOURNAL.]

(Special Despatch.)

The basic reason for the withdrawal of William G. McAdoo from the cabinet is not, as stated for public consumption, the fact that the secretary of the treasury found it impossible to live in Washington on his official salary, but that he found himself in total disagreement with what he considers the President's set purpose to impose government ownership or government control of all public utilities of this country. He was determined to remain no longer a member of a cabinet which was fast drifting into that policy. \* \* \*

Mr. McAdoo has insisted from the start that the roads be returned to their owners at the earliest possible moment after the close of the war, consistent with the public safety, and on the stipulation of certain changes regarding co-operation of movement and reduction of unnecessary competition. His ideas have been bitterly opposed. With the signing of the armistice and the bringing up of the entire question of transportation readjustment, the situation became so acute that he was compelled to make his choice between resignation as a member of the President's official family, or remaining in office and helping to formulate a policy entirely distasteful to him.

[NEW YORK EVENING POST.]

(Special Correspondence.)

If the government is to retain control of the railroads, this will be demanded; if there is a maintenance of rates and wages on war-time basis, with Western products falling in price, the West will resent it. The opinion of the average citizen in the interior has undergone considerable modification on government ownership in the past ten months, resulting from the experiences with accommodation and rates in railway management; and often the wish is heard that

we were back to the "good old days" when the public was courted instead of being ordered.

[PHILADELPHIA PUBLIC LEDGER.]

Perhaps his greatest service of all was his administration of the railroads at a most critical period. The war had put a burden upon them which was more than existing conditions permitted them to bear. Mr. McAdoo brought order out of chaos, remedied the conditions which hampered transportation and brought to the greatest efficiency possible in the circumstances a system which had long been hampered by business rivalries and government restrictions. He had able lieutenants in this work, to be sure; but the main responsibility rested upon his shoulders, and the main credit belongs to him.

[KNOXVILLE SENTINEL.]

The resignation of Secretary of the Treasury William G. McAdoo comes as a bombshell to the public. \* \* \*

The impelling reason that Mr. McAdoo gives for his resignation is sufficiently convincing. \* \* \*

The future disposition of the railroads and conduct of the transportation system of the country itself is going to constitute one of the most disturbing issues of the immediate future and is going to bring on a battle royal between the conservative or reactionary forces, as they will be called, and the progressive elements, as they will style themselves. Labor and capital, in all likelihood, will lock horns on this issue and the operative hosts of these arteries of traffic and commerce through which flow the very life blood of the nation may be perilously implicated in the struggle.

[INDIANAPOLIS NEWS.]

The business of the treasury has, in these trying times, been well managed. As to the railroads not so much can be said. The question is not so much as to Mr. McAdoo's administration, but rather as to whether government and political management under any one can be efficient.

[NEW YORK EVENING POST.]

Selection of Mr. McAdoo's successor as head of the treasury is in some respects of less immediate importance than selection of his successor, as director general of railways.

[YOUNGSTOWN VINDICATOR.]

As director general of the railroads Mr. McAdoo has managed so well that a few months have to a large extent retrieved the harm done by years of mismanagement, questionable finance, and mistaken government policy. The railroads are now for the first time in American history being put on a solid business basis, and if they continue to be as well managed as they have been this year, their prosperity is assured. The leading railroad men of the country are unanimous in giving Mr. McAdoo credit for this remarkable achievement.

[NEW YORK SUN.]

(Special Despatch.)

With nothing definite yet disclosed at the White House regarding Secretary McAdoo's successor as Director General of Railroads there was increased evidence to-day that the resignation of Mr. McAdoo had focussed attention on the question of government ownership of the railroads and had led to much uncertainty.

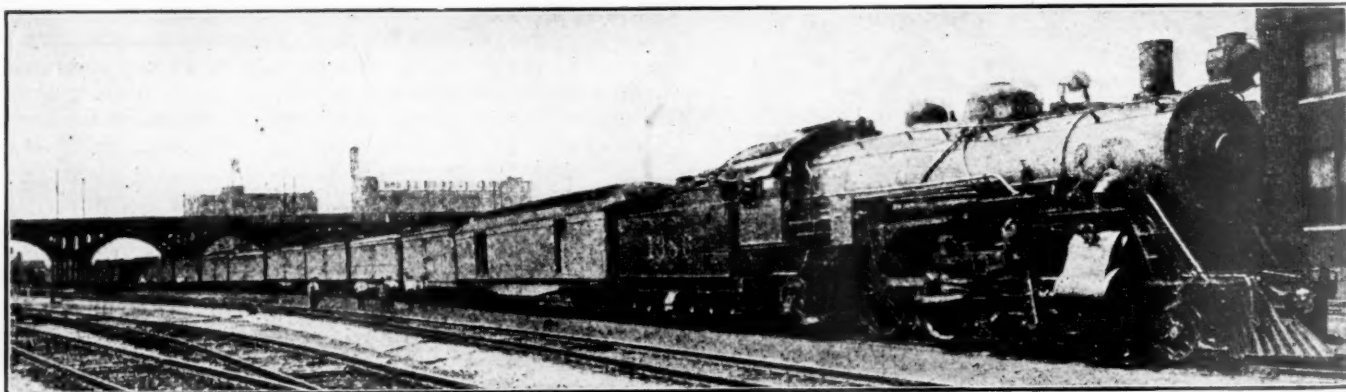
For this uncertainty as to the administration's probable attitude on this occasion, however, there appears to be little if any ground. The resignation of Mr. McAdoo, it can be stated flatly and positively, had nothing to do with government ownership.

[CLEVELAND PLAIN DEALER.]

There can be no criticism of Mr. McAdoo's decision. There can be only regret that the nation is to lose an official who has so abundantly proved his capacity, his ability and his patriotism.

## Solid Express Train

SINCE THE MERGING of the express companies, solid trains of express are becoming very frequent. The photograph shows one of the largest straight express trains sent out of Kansas City in August. It is made up of 15 cars of refrigerated fruit destined to Eastern points. This is one example of the saving of manpower and equipment brought



A Fifteen-Car Solid Express Train Leaving Kansas City

\* \* \* The mention of men like Secretary Lane, formerly of the Interstate Commerce Commission, of Mr. Walker D. Hines, now of the Railway Administration Board, gives assurance that experience and practical judgment will be considered in the candidacies.

[BUFFALO COURIER.]

Financiers of the highest rank and railroad officials of the widest experience have joined in praising his work in both branches almost to a man. Hardly a word of protest or criticism has come in either direction.

about by the consolidation. One engine, one train crew, and one express employee are used for this train, whereas formerly, with this business divided up between three or four companies, this manpower and equipment might have been doubled, if not trebled.

At a meeting at Chicago on Tuesday of the members of the Order of Railroad Telegraphers of the Chicago district, it was voted to strike unless the recent wage award to the telegraphers is modified in a manner which is satisfactory to the men.



## Orders of Regional Directors

**REDUCED FARES FOR OFFICERS, SOLDIERS, ETC., DISCHARGED FROM DUTY.**—The Eastern regional director, file 1600-2-7A263, quotes from a wire from Edward Chambers, from which the following is extracted:

Reduced fares for officers and soldiers discharged from camps will also apply to officers, enlisted men, nurses and enlisted women of U. S. army, navy and marine corps from all places of discharge wherever located, including camps, receiving ships, naval stations, navy yards, mobilization points, concentration points and cities and towns where recruiting headquarters are located. All agents should be immediately authorized to issue tickets at reduced fares on presentation of discharge certificates. Reduced fares will apply from place of discharge or from any intermediate point between point of discharge and destination. Tickets to be sold at two-thirds one way coach fare via route of ticket, with full collection additional passage charge and sleeping and parlor car rates. No reduction to be made where cash fares are collected on trains. War tax must be collected in all cases. Where a body of men is moved from any place to a point of demobilization on transportation requests discharge certificates will be honored from demobilization point to place of enlistment, and tickets will not be issued on such discharge certificates by agents at place where transportation request is honored. Reduction applies where holders of discharge certificates pay their own fares, but does not apply to U. S. government requests, settlement for which will be made on usual basis. Tickets must be sold only between points on federal controlled railroads, not steamship lines, but you should at once ascertain from non-federal controlled roads, including Canadian lines if they desire to participate, and when this information is received tariff will be supplemented or reissued. No understanding has been reached as to distribution of traffic, which should be routed via reasonably direct routes, and so regulated as to avoid congestion. Military meals at 75 cents each to be furnished discharged soldiers, etc., under conditions previously authorized. This traffic should be excluded from all trains from which holders of furlough fare certificates are excluded.

**Taxation of Material and Supplies on Hand.**—Order 2002-4A262 of the Eastern regional director calls attention to the fact that *material and supplies* on hand are the property of the United States government and therefore not subject to taxation. Where tax reports heretofore have been prepared listing such items, the notation "none subject to tax" should be inserted, with any further explanation deemed necessary.

**Two Days off Per Month for Yardmasters.**—The Eastern regional director, file 1200-4-56A257, in referring to rates which were recently authorized, effective June 1, 1918, for general yardmasters, assistant general yardmasters, yardmasters and assistant yardmasters, states that the provision for allowing two days off per month should be made effective as of June 1, 1918, the date the rates were placed into effect. In the event that the various classes of yardmasters have not had two days off per month since June 1 arrangements should be made to compensate them for the days they have not been relieved.

**Uniform Semi-Monthly Paydays on all Railroads.**—The Eastern regional director, file 1500-1-3-20A266, states that it is desired that all payrolls, including those containing the names of officers, shall be paid not less frequently than semi-monthly.

**Report of Express Car Loading.**—The Eastern regional director, file 1801-96A267, states that a recent check of express loading on one of the lines showed that on some days if cars had been loaded solid an entire car could have been saved. This is a very important matter when a long haul is considered and relatively so for shorter hauls. In the nature of the business, much express matter at large terminals is loaded hurriedly, and with the class of labor now employed undoubtedly some of it is improperly loaded and less put in cars than could be. It would therefore seem necessary for a check to be made of express loading and to this end, inspectors should be assigned, where necessary, especially upon trunk lines handling a large volume of business, in carloads and in train loads to see that as far as possible the desired end is attained. If bad stowing or light loading of express cars is found at points where cars are being loaded, the matter should be called to the attention of the local express officials by the inspector, for correction, and report should be sent to the federal manager so that he may take the matter up with the proper executive official.

Where bad loading is discovered along the line or when

cars reach destination, these instances should be reported for similar handling. A very careful check might show that in some instances mail and express could be loaded in the same car and save cars. On a line where loading is heavier in one direction than in the other, and cars have to return in some instances, deadhead, this inspection would not be required in the light direction.

**Extending Railroad Facilities to Freight Forwarders.**—The Eastern regional director, file 600-84A268, states that there is a practice more or less general of so-called forwarding companies consolidating less than carload shipments and forwarding as carloads in name of one shipper, consigned to one consignee and one destination; also distributing from such cars in small lots. In the receipt and delivery of such traffic the carriers must not furnish labor nor permit the use of their facilities to a greater extent than for other traffic. Any tariffs now at variance with these instructions should be amended through regularly authorized procedure.

**Wage Schedules Governing Railroad Employees.**—The Eastern regional director, file 1200-220A269, asks for information with regard to the agreements in force between the various railroads and their employees. It is appreciated that a good many of the crafts and classes of employees have no printed agreements with some of the railroads, and that the wages and working conditions of these employees are governed by blue print or typewritten instructions. The statement should include list of such instructions.

**Embargo on Movement of Hogs.**—In Circular 209 the Central Western regional director outlines a permit system, similar to that in effect on grain traffic, to regulate the movement of hogs from all points to various market centers and stockyards under the embargo issued by the Car Service Section on November 15.

**Grain Embargo; Primary Markets.**—Supplement 4 to Circular 161 of the Central Western Regional director announced that, effective November 22, grain consigned to points in the Chicago switching district will not be accepted without a proper permit from the grain control committee at Chicago. The grain embargo on primary markets placed September 18, as applied to Chicago, has been extended to apply to grain billed to all points in the Chicago switching district.

**Loading and Unloading Tank Cars.**—In Order 123 the Southwestern regional director calls attention to a resolution passed by the advisory committee on tank cars of the National Petroleum War Service Committee which requests loaders and receivers of petroleum and its products to utilize Sundays, holidays and Saturday afternoons for the unloading and loading of tank cars, with the view of conserving tank car equipment. The Oil Division of the Fuel Administration has asked the Railroad Administration to co-operate with shippers and receivers of petroleum in so far as necessary to provide any switching service required on those days. The regional director wishes it understood by all concerned that everything possible must be done to reduce detention of tank car equipment to the minimum.

**Sheltering Guards Who Accompany Shipments.**—In Order 121 the Southwestern regional director recommends that arrangements be made for sheltering guards who accompany shipments during the coming winter season. In cases where it is not feasible to leave a caboose with the guarded cars for the guard's accommodation, the cars should, when practicable, be placed near a yard office or other shelter while waiting for trains to be made up. When shipments have a sufficient number of guards in charge to require an extra caboose for their accommodation, an extra caboose should be left with the cars.

**Consolidation of L. C. L. Freight via Forwarding Companies.**—In Order 120 the Southwestern regional director states that railroads will take no action to interfere with the legitimate operation of forwarding companies who consoli-

date l. c. l. shipments and forward them at carload rates, as well as receive such shipments and distribute them in small lots. The railroads, however, must not participate in the receiving or distribution of such freight either by furnishing labor or permitting the use of their facilities. If any tariffs are at variance with these instructions, correction should be made as early as possible.

**Association Membership.**—In Supplement 1 to Circular 105, the Central Western regional director announces that the following associations have been approved under the director general's order No. 6 and payments for their support may be made and charged to operating expenses: Western Association of Short Line Railroads, Local Freight Agents' Association of Houston, Tex.; Local Freight Agents' Association of Cincinnati, Ohio, and Local Freight Agents' Association of Toledo, Ohio.

**Facilities for American Railway Express Company.**—In Order 119 the Southwestern regional director outlines the practice that is to be observed in determining the rental for present and additional facilities required by the American Railway Express Company.

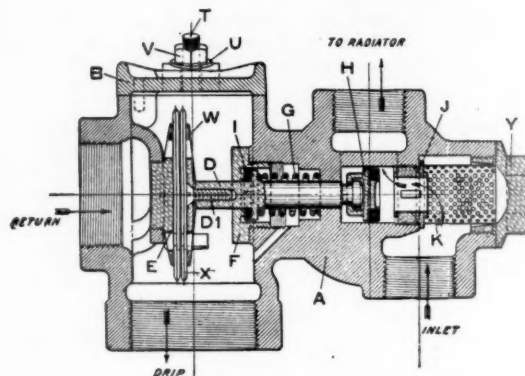
## Gold Inside Connected Vapor Valve

IN THE APPLICATION of the vapor heating system to passenger cars the usual practice has been to place the vapor regulating valve underneath the car. To overcome the objections arising from the inaccessibility of this location and the extreme exposure to which the valve is subjected, the Gold Car Heating & Lighting Company, New York, has placed on the market an inside connected vapor valve which is designated as No. 1112.

The construction and operation of the valve is simple and may readily be grasped from an inspection of the sectional

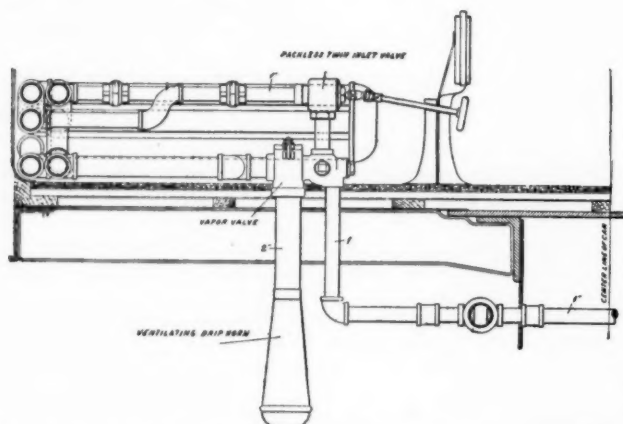
by two swing bolts *T*. The joint between the cover and the casing is steam tight without the use of a gasket. By removing this cover the diaphragm may quickly be removed, if necessary, while the system is in operation, to accomplish which it is only necessary to turn off the steam temporarily.

The admission valve disk slides into place on the end of the main stem, and may be removed by first removing the plugs in the opposite sides of the admission valve chamber.



Section Through the Valve Body

One of the illustrations shows the position of the vapor valve with relation to the rest of the system. With the valve inside the car, in order that the temperature in the diaphragm chamber may be sensitive to outside conditions, a ventilating drip horn is used. This is divided into two parts by a vertical diaphragm, the lower end of which extends below the bottom of the horn, placed at right angles to the longitudinal center line of the car. With the car in motion, or with a wind blowing, a draft is created up one side of the ventilat-



Location of the No. 1112 Vapor Valve in the Heating System

view. At the right are the branch pipe and radiator admission connections, the steam passing from the former to the latter through the diaphragm controlled admission valve *H*. The operation of the admission valve is controlled by an expansion diaphragm of a design which provides sufficient flexibility to obviate the necessity of the use of an adjusting screw within the range of the working pressure encountered in passenger train heating practice. The movement of the diaphragm is transmitted to the valve by a single straight stem which is normally held in position against the diaphragm by the coil spring *G*. The valve is thus always open except when closed under the action of the expansion of the diaphragm. The sensitiveness of the valve is not impaired by the use of packing on the stem.

All working parts of the valve are readily accessible. The diaphragm chamber is closed by a flat cover *B*, held in place



Gold No. 1112 Inside Connected Vapor Valve

ing horn and down the other, which ventilates the diaphragm chamber and maintains the sensitiveness of the operation of the valve. On the basis of service tests it is claimed that the valve will maintain practically a constant temperature at the return of 210 deg. F. On the other hand, with the radiators turned off, the compactness of the valve case and the directness of the operating connection between the valve and the diaphragm insures that all these parts will be sufficiently warmed by direct conduction to prevent freezing. The valve complete, with the ventilating drip horn, weighs only 16 lb.



## General News Department

The demonstration farm of the Nashville, Chattanooga & St. Louis, at Tullahoma, Tenn., about 1,000 acres, has been sold. The land was divided into a number of separate tracts and sold at auction, and the total sum realized is said to have been \$43,050. The improvements which have been made by the railroad company have increased the value of the land four-fold, or more.

Thanksgiving Day having, this year, unusual significance, Director General McAdoo, calling attention to the extraordinary reasons why the American people should give thanks to Almighty God for the unusual blessing they have received, issued a call, addressed to all regional directors, to the effect that they should see that all work not absolutely necessary, on government controlled railroads, be suspended on Thanksgiving Day.

The position-light signal introduced on the Pennsylvania Railroad three years ago by Signal Engineer A. H. Rudd, and now extensively used there, is being tried on the Metropolitan Railway at Willesden Green (London), England. A picture of the signal is shown in the Railway Gazette (London), for October 18. The editor of the Railway Gazette inspected the signal on a bright sunny day in July, and found the lights very distinctly visible at a distance of about half a mile, in spite of the fact that "a decided haze was rising from the metals."

The World's Greatest Chance-Taker, is the title of the colored calendar which has been prepared by the National Safety Council, W. H. Cameron, general manager, Chicago, for use by manufacturers and others in preaching safety first to employees during 1919. This calendar, of which 150,000 copies were distributed for 1918, is furnished at the same prices as last year, ranging from 25 cents each for single copies to 12 cents each for lots of over 500. The usual safety admonitions to avoid stepping on nails, to keep fingers away from buzz saws, to be careful with matches, etc., are enforced by striking colored pictures, one for each month, in which the late Kaiser Wilhelm holds the center of the stage.

Senator Lewis, of Illinois, has introduced a resolution declaring it to be the opinion of the United States Senate that the policy of the United States government for the future should be that of government ownership of interstate railroads, telegraphs and telephones, and also national lines of communication necessary to complete postal and telegraphic service to the citizens of the nation; also that the government should possess and own all natural agencies for utilizing fuel produced and created from the land and produced and created as the result of natural agencies, and to construct and own ships and agencies of water transportation necessary for merchant marine. The resolution also provides that the method of the operation of these agencies is a subject to be regulated and adjusted in each instance according to the demands and circumstances surrounding the operation of that particular agency at the particular time of demand for the use of that agency.

### Meeting of Engineering Committee

The engineering representatives of the seven regions held their second meeting at Washington on Tuesday, with C. A. Morse, assistant director of operation in charge of engineering and maintenance. There was a complete discussion of the subject of data required to keep a record of the amount of maintenance work during the period of federal control as compared with that for the three-year test period, as well as comparative prices of labor and material. The reports were received from the sub-committees of each region but no definite conclusion was reached.

### Conference of Safety Specialists

Regional representatives of the safety section of the Railroad Administration will hold a meeting at Chicago on December 3 with the safety representatives of the various railroads to discuss the safety first program. A. W. Duffy, assistant manager of the safety section, will preside.

### Hours of Service Violations

The Interstate Commerce Commission has issued its annual statistical analysis by the Bureau of Safety of the carriers monthly hours of service reports, showing a total of 263,322 instances of employees continuing on duty for a longer period than that allowed by law in the fiscal year ending June 30, 1918, as compared with 134,000 in 1917, 97,000 in 1916, 70,000 in 1915 and 162,000 in 1914.

### Canadian Government Railways

Following the policy announced when the Canadian government took direct control of the Canadian Northern Railway, the lines which already were owned by the government are to be consolidated, for purposes of operation, with the "C. N. R."; and officers of the latter have had their authority extended as indicated below. At the same time the board of directors of the Canadian Northern has been enlarged by the addition of Thomas Cantley of New Glasgow, N. S.; A. P. Barnhill of St. John, N. B., and Sir Hormisdas Laporte of Montreal.

The government railway system now aggregates about 14,000 miles, extending from Sydney, N. S., to Vancouver, B. C. The roads included are the Canadian Northern, the Intercolonial, the National Transcontinental and the Prince Edward Island.

S. J. Hungerford, formerly general manager of the Canadian Northern, Eastern Lines, has been appointed assistant vice-president, with headquarters at Toronto.

W. A. Kingsland, heretofore general superintendent of the Canadian Northern lines in the Province of Quebec, is appointed assistant general manager of Eastern Lines, with headquarters at Montreal.

E. Langham, general purchasing agent for the Canadian Northern, will have his authority extended to cover the entire system.

Louis Lavoie, purchasing agent for the department of Railways and Canals at Ottawa, has been appointed assistant general purchasing agent for the system.

### Burning Electric Locomotive Ties Up Four-Track Line

On November 20 an electric locomotive on one of the lines running out of New York caught fire a short distance outside of the city, completely tying up a four-track railroad for about two hours. The fire was caused by a breakdown in the insulation of a 640-volt lead to one of the motors, which formed a ground and set the insulation of the cables on fire. The engine crew, which had just started the fire under the heater for the car heating system, mistook the smoke of the burning insulation for the smoke from the heater, with the result that the fire from the burning insulation and the wood-work on the locomotive gained such headway before it was observed that they were unable to control it; although it is said that had the means at hand been properly used at the inception of the fire, no serious trouble would have occurred. Local fire apparatus was called and the power was shut off from the portion of the line in the vicinity of the fire. By the time the fire apparatus had arrived the fire had developed throughout the entire locomotive and had assumed such proportions that it was impossible to get at it effectively, and

it was a case of leaving the fire to burn itself out. It was surprising to those witnessing the spectacle that an electric locomotive had so much combustible material in it, as these are ordinarily considered fireproof machines.

### I. C. C. Statistics for 1916

The printing of the twenty-ninth annual report on the Statistics of Railways in the United States for the year ended June 30, 1916, which circumstances have unavoidably delayed, has just been completed. This report fills 755 pages, and is similar to the corresponding report for 1915, with the omission of details for individual roads of outstanding capitalization and of investment in securities, etc., and with fewer details for steam railway companies of Class III and for switching and terminal companies. Copies may be had of the Superintendent of Documents, Government Printing Office, Washington, for one dollar each. The text (99 pages), without the tables, cost 20 cents.

### Recent Changes in the M. C. B. and M. M. Associations

F. McManamy, assistant director of the division of operation, U. S. R. A., in charge of the mechanical department, has been made an honorary member of both the Master Car Builders' and the Master Mechanics' associations. George Laughlin, superintendent of car department, Armour Car Lines, has been appointed a member of the arbitration committee of the M. C. B. Association. J. J. Burch, district car inspector, Norfolk & Western, has been appointed chairman of the Loading Rules Committee of the M. C. B. Association, succeeding A. Kearney, resigned, and J. E. Mehan, assistant master car builder of the Chicago, Milwaukee & St. Paul, has been appointed a member of this committee, increasing the number of members to eight. The following changes in committees have been made to fill the vacancies caused by the resignation of C. D. Young, who has entered active military service: H. E. Smith, of the division of operation, inspection and tests section, has been appointed a member of the M. C. B. committee on Specifications and Tests for Material. B. J. Burns, superintendent of rolling stock of the Michigan Central, has been made chairman of the M. C. B. committee on Brake Shoe and Brake Beam Equipment, and F. Waring, engineer of tests, Pennsylvania Railroad, has been made a member of the committee. F. Waring has been appointed chairman of the committee on Specifications and Tests for Materials of the M. M. Association, and J. C. Ramage, superintendent of tests on the Southern Railway, has been made a member of the committee. A. R. Ayers, superintendent of motive power, New York, Chicago & St. Louis, has been made a member of the committee on Specifications and Recommended Practice of the M. M. Association.

The revised specifications for tank cars are now ready for delivery and prices are given in Circular No. 22. Another recent circular announces an increase in the price of Pintsch gas from \$1.10 to \$1.45 per receiver.

### Chicago Banker Favors Government Ownership

In an interview published in the Chicago Tribune on November 26, John J. Mitchell, president of the Illinois Trust & Savings Bank, Chicago, expresses his conviction that government ownership or operation of the railroads furnishes the only adequate solution of the railroad and utility situation as it now exists. He said in part: "Events which have transpired since the period of the war have led me to completely change my views toward government control or ownership of railroads and transportation utilities. . . . Under present conditions it would mean almost bankruptcy for a number of lines to be given back to their original owners. Their credit has been destroyed. Under the heavy expenses which they are now operating they would not be able to borrow money and they would not be able to maintain rates or cause a readjustment of wages without serious difficulties. These things the government can do."

"The roads have spent millions in establishing agencies, not only in this country, but in different countries abroad.

They have built up good will, made their roads known, and established avenues of traffic. All these results have been dissipated through the present government control, which has completely changed the course of traffic and undone all the special work by which each road established its identity and earning power.

"The government with its credit behind the properties could borrow money at 4½ per cent, against the present charge of 6 per cent. The government alone can regulate wages and raise or lower rates in accordance with what it may deem fair dealing. The roads tried for years to advance rates to a point adequate to meet increasing expenses, but were unable to do so, and only the taking over of the properties last year and the government's increase in freight and passenger rates saved the roads from bankruptcy.

"The government has substantially nullified the Sherman law and through its pooling arrangements, or what amounts to the same thing, can save expenditures that the private corporation could not under existing laws. The government can economize in the use of terminals, the routing of freight and passengers, and secure the best economic results, if those who direct the policies are willing and competent to do so. Private owners could not do these things.

"In the end, if expenses run beyond income after guaranteeing bond interest and reasonable return to investors in the properties, appropriations can be made to meet the deficits and the excess charges be raised through taxes. In this way the well-to-do will carry the burden instead of it being distributed among the small taxpayers. There is in the air a spirit bred by the war and special events in Europe that cannot be ignored and it points toward government and municipal ownership or control."

### Tie Producers' Meeting Postponed

The meeting of Railroad Cross Tie Producers, which was originally scheduled to be held in St. Louis on November 19 and 20, was postponed to December 3 and 4 because of the epidemic of Spanish influenza. The meeting will be called to order at the Planters' Hotel, St. Louis, at 10 a. m., on December 3. Representatives from all the large tie producing sections of the country are expected to be present and to discuss the problems in that industry. Information will be presented showing the comparative number of cross ties now being produced in the different districts in comparison with the output of previous years; the effect of the new specifications on tie production, both as to the number of ties produced and the grades now being made; the cost of standing timber and of its manufacture into ties; labor conditions; the disposition and method of conservation of the smaller timber which has heretofore gone into the manufacture of ties and the problems of financing the manufacture of ties from the tree to the right of way, etc.

This is the first movement of a national character which has ever been initiated to deal with the problems of cross tie manufacture. Its purpose is to establish a basis of co-operation with the United States Railroad Administration in order to increase the output of ties and relieve the present acute shortage.

### Passenger Traffic Officers

The annual meeting of the American Association of passenger traffic officers is to be held on Wednesday and Thursday, January 22 and 23, 1919. The opening session will be held at the New Willard Hotel, Washington, D. C., at 10 o'clock Wednesday morning, and the order of exercises includes an address by the director general of railroads; while the afternoon session, and the sessions of the following day are to be held at the Southern Hotel, Baltimore, Md.

### Associations Approved

The Toledo Local Freight Agents' Association and the Western Association of Short Line Railroads have been added to the list of associations which have been approved by the Railroad Administration and whose members, therefore, have leave from Washington to charge their due bills to railroad operating expenses.



## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF SEPTEMBER, 1918

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of way and structures.	Equip. men.	Trans. portation.					
Colorado Midland .....	337	\$9,079	\$126	\$9,464	\$21,789	\$12,655	\$1,133	536.53	\$41,314	\$6,864	-\$48,408	.....
Duluth, South Shore & Atl. ....	601	350,895	98,816	489,978	84,247	102,186	11,839	88.41	56,291	19,000	37,292	-\$29,029
Kansas City Terminal .....	254	.....	.....	.....	113,458	19,458	4,916	107.05	122,124	18,264	26,108	-\$3,791
Mineral Range .....	160	98,711	2,773	103,414	14,008	19,656	6,267	95.68	24,458	3,300	21,159	11,313
Pitts., Shaw, & Nor. ....	204	81,875	5,464	90,471	29,386	51,802	1,367	94.71	4,783	1,816	2,968	1,224
Peoria & Pekin Union .....	19	22,101	6,729	113,334	113,334	29,080	11	179.04	-20,292	9,500	-29,792	-\$32,403
Ad. City .....	170	\$1,216,805	\$1,775,553	\$3,152,813	\$305,613	\$340,507	\$11,637	68.59	\$990,219	\$103,800	\$886,419	\$154,242
Atl. Coast Line .....	4,813	26,473,742	12,143,501	41,393,761	4,661,139	7,930,009	483,040	74.80	10,427,361	1,795,000	8,626,858	376,030
Buf. & Susq. ....	254	1,615,469	51,498	1,695,503	293,240	543,739	16,969	94.25	97,520	36,900	60,620	158,953
Chicago & Alton .....	1,050	12,370,405	4,206,502	17,353,341	2,426,381	4,398,106	253,310	84.28	2,786,397	547,811	2,236,684	1,819,254
Chicago & Eastern Illinois .....	1,131	15,118,963	2,300,467	19,475,002	2,426,381	4,398,106	253,310	84.28	2,786,397	547,811	2,236,684	1,819,254
Chicago & Erie .....	269	6,292,169	590,994	7,587,908	1,358,094	1,545,918	126,725	94.24	436,530	329,475	107,008	1,305,823
Chicago & North Western .....	8,090	62,077,491	20,855,358	91,427,091	13,620,005	19,454,383	766,479	85.68	13,083,548	3,780,000	9,280,132	8,195,858
Chicago, Burlington & Quincy .....	9,373	74,098,675	21,110,094	104,032,713	14,375,881	21,617,328	941,831	78.41	22,463,601	4,400,000	18,063,292	9,371,781
Chicago, Great Western .....	1,496	9,396,719	3,614,360	19,096,588	2,261,741	3,242,002	313,386	90.70	1,775,039	400,000	1,275,039	1,054,948
Chicago, Indianapolis & Louisville .....	657	5,415,050	1,799,386	7,904,612	877,079	2,100,382	152,001	83.88	1,274,648	286,053	987,324	-807,619
Chicago Junction .....	12	.....	.....	.....	2,464,418	388,577	6,458	110.51	-219,069	18,496	-277,564	-564,335
Chicago, Milwaukee & St. Paul .....	10,305	67,145,253	17,730,312	94,372,315	12,590,041	24,308,137	993,788	89.28	10,116,029	4,642,015	5,430,147	-1,849,185
Chicago, Peoria & St. Louis .....	247	1,348,067	197,548	1,636,831	253,863	585,176	61,675	111.96	1,951,838	68,603	1,883,235	-460,492
Chicago, Rock Island & Gulf .....	474	227,581	833,567	3,257,297	444,487	518,107	68,804	72.93	891,663	118,394	772,486	-9,582
Chicago, Rock Island & Pacific .....	7,789	47,384,050	20,325,386	72,620,188	10,199,480	17,112,987	928,861	85.19	16,753,868	3,084,629	7,661,204	-4,837,266
Chicago, St. Paul, Minn. & Omaha .....	1,749	11,864,032	4,677,320	17,739,388	2,065,060	3,308,669	197,370	82.80	3,050,307	979,779	2,068,106	1,222,268
Chicago, Terra Haute & Southeastern .....	374	3,362,721	191,562	3,631,106	425,750	1,269,415	1,335,891	87.78	443,336	130,500	312,836	-241,954
Cincinnati, Indianapolis & Western .....	321	1,713,797	410,623	2,333,979	334,739	680,708	59,644	98.15	42,988	91,501	-48,513	-397,666
Cincinnati, New Orleans & Texas Pacific .....	337	7,426,749	2,039,796	11,195,975	790,440	3,228,619	201,386	81.02	2,123,684	342,999	1,779,932	-1,128,895
Cincinnati, Northern .....	246	1,764,430	142,819	1,981,440	313,211	560,121	29,345	85.84	280,525	105,298	175,163	-249,813
Cleveland, Cincinnati, Chic. & St. Louis .....	2,391	35,981,803	11,402,816	51,822,062	5,154,491	9,307,053	712,968	70.78	15,140,956	2,950,694	12,184,027	2,578,384
Coal & Coke .....	197	825,734	195,244	1,061,414	265,115	383,566	42,306	112.49	-132,596	45,000	-177,596	-261,885
Colorado Midland .....	337	844,051	102,464	991,011	301,081	197,880	49,535	119.42	-192,499	61,776	-254,276	-55,491
Colorado Southern .....	1,100	6,969,798	1,604,986	9,151,465	1,060,036	1,985,726	79,996	73.98	2,880,063	423,000	1,956,252	-625,967
Colorado & Wyoming .....	42	253,279	21,654	836,604	88,977	144,849	1,233	76.25	198,649	34,440	164,195	-175,091
Cumple Creek & Colorado Springs .....	116	596,806	96,566	711,050	64,204	91,916	8,944	60.43	280,969	66,209	214,755	-188,866
Cumberland Valley .....	163	3,267,726	562,279	4,111,257	390,217	571,420	44,913	61.92	1,565,312	79,461	1,485,211	-152,053
Delaware & Hudson Co.—R. R. Dept. ....	902	22,540,378	2,190,336	26,082,585	2,589,508	6,309,303	202,863	85.56	3,765,822	573,820	3,089,675	-1,865,602
Delaware, Lackawanna & Western .....	955	36,225,016	8,230,297	49,736,311	3,553,050	9,707,559	244,883	72.56	13,644,813	2,111,945	11,533,807	-1,747,457
Denver & Rio Grande .....	2,597	17,163,106	3,821,211	22,289,451	3,141,495	5,813,129	222,464	80.68	4,305,480	955,000	3,347,618	-2,393,429
Denver & Salt Lake .....	255	1,295,995	240,919	1,592,499	506,201	578,204	8,987	122.21	-353,822	81,021	-434,853	-343,577
Denver & Mackinac .....	381	829,063	248,194	1,153,360	191,197	285,158	21,002	89.06	1,261,334	72,211	1,189,123	-294,511
Det., Tol. & Ironton .....	460	2,161,583	106,235	2,409,837	492,821	684,436	36,922	109.21	-222,150	80,100	-302,402	554,491
Detroit & Toledo Shore Line .....	80	1,429,069	.....	1,446,461	98,415	172,816	15,286	56.23	632,975	116,050	516,926	-147,624
Duluth, South Shore & Atl. ....	601	2,603,995	768,421	3,602,973	732,678	555,835	63,850	88.94	395,330	218,036	177,294	-302,874
Duluth & Iron Range .....	284	6,973,263	170,891	7,315,284	895,922	795,834	7,074	47.96	3,802,820	411,900	3,390,412	1,488,603
Duluth, Missabe & Northern .....	410	15,712,256	332,024	16,730,438	1,421,818	1,286,459	27,041	35.67	10,762,535	913,603	9,849,532	4,220,013
Duluth, Winnipeg & Pacific .....	175	1,032,223	202,243	1,267,890	195,209	218,595	24,924	89.00	139,456	71,322	68,134	-290,810
East St. Louis Connecting Ry. ....	3	.....	.....	.....	836,675	110,848	2,711	113.07	-109,373	19,990	-129,366	-278,264
El Paso & Southwestern Co. ....	1,027	8,758,037	1,879,664	11,127,133	1,008,891	1,665,645	128,927	56.52	4,836,057	578,868	4,257,018	-252,168
Elgin, Joliet & Eastern .....	807	12,215,953	117	14,238,426	1,395,210	3,438,611	61,234	73.39	3,807,502	456,955	3,345,544	258,951
Erie .....	1,989	47,198,517	8,546,129	61,953,959	8,154,647	21,837,206	679,532	103.51	-2,174,746	2,092,556	-4,272,444	-10,953,876
Florida East Coast .....	764	3,839,362	1,966,751	6,222,306	796,596	1,061,647	90,905	71.02	1,947,907	338,798	1,612,611	-1,042,297
Fonda, Johnston & Gloverville R. Co. ....	88	265,799	53,080	843,017	84,017	70,500	5,633	59.63	340,305	40,500	299,805	-24,006
Ft. Smith & Western R. R. Co. ....	253	626,887	223,855	924,660	153,339	245,660	26,902	88.90	102,618	42,000	60,524	11,229
Fort Worth & Denver City .....	454	3,825,886	1,477,089	5,548,259	552,449	1,324,234	46,800	79.15	1,156,489	190,090	966,224	-594,821
Fort Worth & Rio Grande .....	235	497,955	288,914	847,043	156,536	177,669	15,940	89.64	87,676	27,264	59,814	8,609
Galveston, Harrisburgh & San Antonio .....	1,367	10,974,476	3,924,785	15,888,501	1,618,211	2,733,141	232,379	68.54	4,998,389	506,003	4,489,900	-547,693
Galv. Wharf .....	13	.....	.....	.....	790,491	11,441	3,345	62.95	292,845	109,700	183,145	-93,127
Georgia .....	328	2,895,646	1,520,430	4,722,132	351,657	634,821	72,821	64.96	1,654,619	57,213	1,197,264	835,050
Georgia, Southern & Florida .....	402	1,554,248	1,797,286	2,600,015	381,751	675,344	44,146	88.35	276,899	122,006	154,156	-118,684
Grand Rapids & Indiana .....	569	3,490,736	1,380,332	5,324,113	791,034	1,437,272	89,887	89.15	556,009	208,241	347,023	-439,830
Great Northern .....	8,258	51,002,999	11,743,106	68,566,615	12,611,339	13,042,729	636,283	83.88	9,947,934	4,375,017	5,567,422	-11,628,792
Gulf, Mobile & Northern .....	402	1,371,492	311,466	1,745,106	280,863	371,397	42,109	85.98	293,531	102,309	191,222	-280,878
Gulf & Ship Island .....	307	1,342,794	482,170	1,974,730	363,668	356,550	33,624	75.56	482,592	94,541	387,550	-89,368
Gulf, Colorado & Santa Fe .....	1,937	9,383,819	3,777,943	14,028,418	2,513,330	2,469,686	198,425	75.51	3,436,040	627,064	2,808,040	-128,345
Hocking Valley .....	349	8,493,209	765,607	9,253,592	1,072,151	2,779,021	66,663	78.77	2,084,812	461,175	1,623,521	-573,133
Houston, East & West Texas .....	190	1,072,972	366,715	1,525,614	217,550	203,103	651,058	73.28	407,620	57,116	350,196	-126,036
Houston & Texas Central .....	887	4,612,761	1,653,467	6,726,305	792,456	1,184,042	100,561	70.58	1,968,570	319,606	1,646,831	-40,943

NINE MONTHS OF CALENDAR YEAR 1918





## REVENUES AND EXPENSES OF RAILWAYS

NINE MONTHS OF CALENDAR YEAR 1918—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) comp. with last year.
		Freight.	Passenger.	Total.	Way and structures.	Equip. ment.	Traffic.					
St. Louis, Brownsville & Mexico.....	548	\$2,097,444	\$872,251	\$3,199,829	\$473,882	\$608,427	\$61,899	\$957,111	69.38	\$979,500	\$888,979	—\$162,669
St. Louis, Merchants Bridge Terminal.....	9	.....	.....	.....	.....	.....	.....	.....	92.81	189,057	113,463	—451,193
St. Louis-San Francisco.....	4,761	32,236,888	15,369,020	50,714,786	7,208,023	11,548,332	456,258	17,422,330	79.11	10,589,452	8,531,544	4,578,131
St. Louis, San Francisco & Texas.....	134	861,668	118,986	1,038,040	134,766	164,660	17,365	195,061	81.19	10,589,452	8,531,544	4,578,131
St. Louis Southwestern.....	968	7,325,814	1,854,491	9,582,230	1,072,238	1,684,879	218,969	2,797,001	63.66	3,481,236	3,096,481	—235,091
St. Louis Southwestern of Texas.....	814	3,259,200	1,423,149	5,012,394	1,051,170	1,276,134	101,938	2,295,845	98.51	74,246	175,757	—362,697
San Antonio & Aransas Pass.....	732	1,960,992	891,087	3,087,343	509,721	965,458	59,939	1,595,549	106.10	188,386	130,000	—510,677
Seaboard.....	3,561	15,991,017	10,522,767	28,604,484	3,430,370	6,541,002	606,147	12,056,967	82.55	4,991,388	3,887,085	—1,473,940
South Buffalo Ry. Co.....	35	431,520	.....	431,520	1,161,813	131,608	1,407,298	620,559	78.52	249,549	236,949	4,784
Southern.....	6,983	54,313,669	31,438,257	93,110,470	10,165,573	17,623,557	1,181,608	34,643,642	70.96	27,031,025	2,769,469	5,908,611
Southern in Mississippi.....	278	565,703	364,799	1,010,507	230,685	128,181	20,963	528,391	93.48	66,047	81,000	—14,964
Southern Pacific.....	7,103	71,986,706	29,746,341	111,293,855	13,405,462	18,937,500	1,170,071	43,801,181	73.23	29,796,260	4,824,134	—7,401,795
Spokane, Portland & Seattle.....	554	4,148,949	1,566,254	6,102,301	724,931	651,630	53,048	1,805,514	57.32	2,604,386	632,406	—1,971,503
Spokane, International.....	162	601,380	117,651	745,237	120,908	78,185	13,096	244,409	65.69	255,655	29,844	225,795
Staten Isl. Rapid Transit.....	23	607,407	633,689	1,401,613	242,553	188,226	12,229	696	86.26	192,556	96,000	96,535
Tennessee Central.....	293	1,406,263	710,588	2,216,979	459,798	455,539	25,412	901,572	86.04	309,289	48,657	—7,995
Terminal R. R. Assn. of St. Louis.....	36	.....	.....	.....	.....	.....	.....	.....	80.23	559,077	288,308	270,726
Texas & New Orleans.....	81	683,599	240,610	886,383	117,599	96,322	19,059	363,410	71.64	251,294	66,227	185,067
Texas & Pacific.....	469	3,662,819	1,397,641	5,060,460	1,432,851	624,216	55,813	1,963,032	78.60	1,178,258	196,613	—624,519
Toledo & Ohio Central.....	1,946	12,209,496	5,518,435	18,959,541	2,568,597	3,596,309	241,189	8,084,647	80.22	3,750,097	2,945,889	—967,088
Toledo, Peoria & Western.....	435	6,220,247	524,472	7,186,933	1,149,425	1,819,068	65,216	3,323,064	90.61	674,837	264,075	—825,636
Toledo, St. Louis & Western.....	247	782,570	337,755	1,120,325	212,192	349,242	23,260	566,016	100.51	—6,071	84,254	—96,325
Trinity & Brazos Valley.....	368	615,585	119,734	835,335	230,704	365,423	16,818	438,576	79.73	1,222,875	197,200	—362,123
Union Pacific.....	3,628	50,629,518	13,488,700	69,888,762	7,601,250	11,442,934	612,006	19,515,109	60.79	27,394,348	2,552,778	5,789,386
Union R. R. of Pennsylvania.....	35	.....	.....	.....	.....	.....	.....	.....	91.52	435,290	92,713	159,929
Utah Railway.....	98	1,012,031	5,546	1,017,577	1,023,264	114,549	1,517	1,023,264	47.01	357,158	88,535	276,623
Vick., Shreveport & Pacific.....	171	1,049,129	570,017	1,819,146	237,472	433,278	40,937	691,096	80.57	363,461	86,871	—118,134
Washington.....	518	7,634,176	476,402	8,679,748	982,247	1,692,022	558,450	3,411,536	72.06	2,424,715	337,130	—1,197,725
Wabash.....	2,519	24,237,781	7,573,765	34,311,330	4,237,217	6,862,593	538,450	16,198,507	83.91	5,525,433	999,771	—3,544,951
Wash. Southern.....	35	767,101	1,501,081	2,716,922	180,624	270,795	15,802	910,564	52.96	1,277,872	55,586	1,222,286
West Jersey & Seashore.....	359	2,602,248	7,267,892	9,870,140	1,618,080	1,361,270	71,045	3,743,047	85.82	1,158,643	371,466	—2,869,978
Western Maryland.....	707	9,602,441	5,766,015	15,368,456	1,731,666	3,356,641	185,330	7,024,412	99.23	84,994	388,800	—303,806
Western Ry. of Alabama.....	1,011	6,917,661	1,064,819	8,348,466	1,350,838	1,069,650	153,688	2,606,848	65.74	2,424,715	417,086	1,997,629
Wheeling & Lake Erie.....	133	979,059	686,007	1,816,042	221,695	336,941	636,433	606,117	70.56	534,537	63,000	471,537
Yazoo & Mississippi Valley.....	511	8,801,433	357,687	9,992,774	1,461,941	2,345,881	67,488	4,037,546	81.65	1,832,969	473,617	—873,959
Yazoo & Mississippi Valley.....	1,382	12,112,999	3,146,565	15,933,644	2,183,673	3,373,413	142,026	5,917,468	75.43	3,914,184	561,255	251,617
EIGHT MONTHS OF CALENDAR YEAR, 1918.												
Spokane, International Ry. Co.....	162	\$523,483	\$104,628	\$651,523	\$105,403	\$64,302	\$11,859	\$23,755	65.51	\$224,723	\$26,682	\$41,337
St. Louis, Merchants Bridge Terminal.....	9	.....	.....	.....	.....	.....	.....	.....	92.31	181,068	66,878	114,133
St. Louis, San Francisco & Texas.....	134	861,668	118,986	1,038,040	134,766	164,660	17,365	195,061	81.19	10,589,452	8,531,544	4,578,131
Staten Island Rapid Transit.....	23	607,407	633,689	1,401,613	242,553	188,226	12,229	696	86.26	192,556	96,000	96,535
Terminal R. R. Association of St. Louis.....	36	.....	.....	.....	.....	.....	.....	.....	80.93	468,965	233,905	235,060
Tennessee Central.....	293	1,406,263	710,588	2,216,979	459,798	455,539	25,412	901,572	86.04	309,289	48,657	—7,995
Texas & New Orleans.....	469	3,662,819	1,397,641	5,060,460	1,432,851	624,216	55,813	1,963,032	78.60	1,178,258	196,613	—624,519
Texas & Pacific.....	1,946	12,209,496	5,518,435	18,959,541	2,568,597	3,596,309	241,189	8,084,647	80.22	3,750,097	2,945,889	—967,088
Toledo & Ohio Central.....	435	6,220,247	524,472	7,186,933	1,149,425	1,819,068	65,216	3,323,064	90.61	674,837	264,075	—825,636
Toledo, Peoria & Western.....	247	782,570	337,755	1,120,325	212,192	349,242	23,260	566,016	100.51	—6,071	84,254	—96,325
Toledo, St. Louis & Western.....	454	5,064,874	731,605	6,034,531	966,521	1,306,419	104,601	2,336,442	79.73	1,222,875	197,200	—362,123
Trinity & Brazos Valley.....	368	615,585	119,734	835,335	230,704	365,423	16,818	438,576	134.51	—288,599	56,638	—347,236
Union Pacific.....	3,628	50,629,518	13,488,700	69,888,762	7,601,250	11,442,934	612,006	19,515,109	60.79	27,394,348	2,552,778	5,789,386
Union R. R. of Pennsylvania.....	35	.....	.....	.....	.....	.....	.....	.....	91.52	435,290	92,713	159,929
Utah Railway.....	98	1,012,031	5,546	1,017,577	1,023,264	114,549	1,517	1,023,264	47.01	357,158	88,535	276,623
Vick., Shreveport & Pacific.....	171	1,049,129	570,017	1,819,146	237,472	433,278	40,937	691,096	80.57	363,461	86,871	—118,134
Washington.....	518	7,634,176	476,402	8,679,748	982,247	1,692,022	558,450	3,411,536	72.06	2,424,715	337,130	—1,197,725
Wabash.....	2,519	24,237,781	7,573,765	34,311,330	4,237,217	6,862,593	538,450	16,198,507	83.91	5,525,433	999,771	—3,544,951
Wash. Southern.....	35	767,101	1,501,081	2,716,922	180,624	270,795	15,802	910,564	52.96	1,277,872	55,586	1,222,286
West Jersey & Seashore.....	359	2,602,248	7,267,892	9,870,140	1,618,080	1,361,270	71,045	3,743,047	85.82	1,158,643	371,466	—2,869,978
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Wheeling & Lake Erie.....	133	979,059	686,007	1,816,042	221,695	336,941	636,433	606,117	70.56	534,537	63,000	471,537
Yazoo & Mississippi Valley.....	511	8,801,433	357,687	9,992,774	1,461,941	2,345,881	67,488	4,037,546	81.65	1,832,969	473,617	—873,959
Yazoo & Mississippi Valley.....	1,382	12,112,999	3,146,565	15,933,644	2,183,673	3,373,413	142,026	5,917,468	75.43	3,914,184	561,255	251,617
Spokane, International Ry. Co.....	162	\$523,483	\$104,628	\$651,523	\$105,403	\$64,302	\$11,859					

## Traffic News

The Boston & Portland line of the Eastern Steamship Company has suspended its trips for the winter or longer. This line of boats has been running regularly, summer and winter, for 74 years.

Rates on coal to points in New England "are clearly unjust and a grievous burden." This is the main point in a telegram which the Public Service Commission of Massachusetts sent to the director-general at Washington last week. The telegram says that the people of New England have been trying for five months to get the Administration to carry out its promise to readjust the rates; and if Director Chambers is not at once instructed to make a reduction, the commissioners desire to have a hearing before the director general.

### Additional Passenger Charge Abolished

Director General McAdoo has announced that, effective December 1, the additional passage charge of 16 $\frac{2}{3}$  per cent of the normal one-way fare now required from passengers traveling in standard sleeping cars and parlor cars, and 8 $\frac{1}{3}$  per cent of the normal one-way fare required from passengers traveling in tourist sleeping cars, will be abolished. This means a reduction of one-half cent per mile in the fare of passengers using standard sleeping or parlor cars, and one-fourth cent a mile in the fare of those using tourist sleeping cars. The charge in question has served a useful purpose in conserving sleeping car equipment and its cancellation, it is estimated, will cause a reduction of passenger revenues at the rate of \$57,000,000 per year.

### Coal Zone Restrictions Modified

Because of congested conditions on the Chesapeake & Ohio, the Fuel Administration has announced modifications in the restrictions heretofore governing parts of Zones L and M. The producing districts affected are those known as the K and M; the Kanawha district on the C. & O.; the Guyan Valley, and the Logan districts on the C. & O.; and the Kenova-Thacker districts on the Norfolk & Western, all in West Virginia; and the Sandy Valley and Elkhorn districts, in Kentucky. Producers in those districts are now permitted to ship coal into a portion of Indiana and into an increased portion of Ohio. Shipments into Indiana, however, must be confined to coal for industrial plants.

### Coal Loading to November 10

The weekly report of the Car Service Section of the Railroad Administration on the quantity of coal of all kinds loaded by roads for week ended November 9, as compared with the same period of 1917, shows the following:

	1918	1917
Total cars Bituminous.....	177,839	197,885
Total cars Anthracite.....	32,525	38,571
Total cars Lignite.....	3,432	4,650
Grand total .....	213,796	241,106

The decrease in loading has been due to influenza among the miners and railroad workers. The total increase in 1918 up to and including the week ending November 16, over the same period in 1917 has been 645,831 cars.

Improvement in the influenza situation in the producing fields was expected to bring about an increase in coal production during the week of November 16, but the celebration attending the signing of the armistice offset whatever increase might have been so derived. The output is estimated at 9,707,000 net tons, a decrease of 14 per cent compared with the week of November 16. The percentage of full time output lost on account of car shortage during the week of November 9 is reported as 2.6 per cent. The output of anthracite during the week ending November 16 decreased 11 $\frac{1}{2}$  per cent.

## Commission and Court News

### Interstate Commerce Commission

The American Railway Express Company has filed with the Interstate Commerce Commission a fifteenth section application for permission to file tariffs increasing express rates as authorized by General Order No. 56 of the Director General of Railroads.

### Court News

#### Obstruction of Drainage

Where the drainage of land is obstructed by a railroad embankment, the Mississippi Supreme Court holds that the owner is not entitled to recover damages sustained by his tenants and share croppers as well as by himself. Where the obstruction can be obviated at moderate expense by the construction of culverts, damages cannot be assessed on the theory that the cause thereof will permanently continue. The owner must bring successive actions for damages to his crops as they accrue.—Yazoo & Mississippi Valley (Miss.), 79 So. 65. Decided May 13, 1918.

#### Duty to Alighting Passenger

The Alabama Supreme Court holds that if the proper physical facilities are provided for alighting, no duty rests on the railroad in ordinary cases to render manual assistance to passengers alighting from a train, even though requested to do so. Further, it is held that when the lowest car step is not higher above the ground than is usual for other vehicles from which people safely alight without a footstool, no stool need be provided. But where the distance from the step to the ground is three feet or thereabouts, a footstool or some other convenient means must be furnished.—Atlantic Coast Line v. Farmer (Ala.), 79 So. 35. Decided April 18, 1918.

#### Value of Shipment Lost—"Place of Shipment"

Action was brought for the value of a shipment of a bag of potatoes consigned from New York City to Lakewood, N. J., and lost in transit. The bill of lading provided that the value of the property should be taken at the place and time of shipment. The New Jersey Supreme Court holds that the charge for carting the goods from the place where the plaintiff bought them, in New York City, to the railroad's freight station there, did not constitute a part of the value of the shipment within the meaning of the bill of lading. The words "place of shipment" therein mean the city, town, or locality where the shipment originates as contradistinguished from the place of destination, and cannot be construed to mean the actual street or station from which the goods are shipped.—Blessing v. Central of New Jersey. New Jersey Supreme Court, 103 Atl., 1045.

#### Recovery of Freight Undercharges

Carloads of fruit were shipped in interstate commerce to a commission merchant, which, as to one of the cars, as to which no bill of lading was sent the consignee, told the terminal carrier that it was acting as a commission merchant, and was not owner, and that it would not accept the goods until informed on what terms they would be released. The terminal carrier understated the freight charges, which were paid. As to the other cars the consignee made no such statement to the carrier. The Massachusetts Supreme Judicial Court holds that although the consignee would not be liable for the undercharges on the first car, the carrier was not estopped as matter of law to claim from the consignee undercharges on the shipments as to which the latter did not state it was not owner, the carrier having misstated these also.—New York Central & H. R. (Mass.), 119 N. E. 855. Decided May 25, 1918.



### Waiver of Written Notice of Loss

A contract for the intrastate shipment of live stock provided that the shipper should give written notice of loss within 10 days after unloading. In an action for damages the California Court of Appeal holds that where parties contract for such a written notice, the right to notice is waived by the carrier, if, after receiving less formal notice, it proceeds to investigate the damage suffered and makes suggestions or gives directions as to the care or disposition of the damaged property. It also holds that the notice need not be given within the time limited in a case in which the extent or character of the damage suffered cannot be ascertained within that time. The contention of the railroad was that a carrier has no power to waive such a provision in a shipment contract, and several decisions of the federal courts were cited in support of that view. The court said that all these cases except one, *Clegg v. St. Louis & S. F.*, 203 Fed. 971, 122 C. C. A. 273, derived their force and effect from the fact that the provisions in question were contained in a statute or in a form of bill of lading prescribed by statute, and which was in general use by railroads engaged in interstate commerce, and the damage in each case resulted to property in transit in such commerce. *Bliss v. Southern Pacific (Cal.)*, 172 Pac. 760. Decided May 17, 1918.

### Division of Through Freight

#### Rates in the State of Colorado

The Denver & Salt Lake brought an action to review an order of the Colorado Public Utilities Commission fixing a division of through rates on coal from the Oak Hills districts, on the plaintiff's road, to points in the eastern part of the state on the roads of the C. B. & Q., the Union Pacific and the Rock Island. The Colorado Supreme Court makes the following rulings: A division of freight rates between railroads by a Public Utilities Commission that gives far less than the average ton-mile rate on the through haul to the railroad which has necessarily the highest ton-mile cost, is unjust and unreasonable. In making the division the commission could not consider for any purpose local freight rates not offered in evidence. When a reduction is made in a through freight rate it does not follow that the commission may base a division of such new rate between roads upon a former apportionment, regardless of its inequalities. A division of through freight rates between connecting roads, made by the commission without any regard to mileage basis as an element, is an error of law, reviewable by the Supreme Court on appeal. A prior division of freight rates, based on agreement, does not prove its reasonableness after the commission has reduced the through rate. Because a railroad is located where coal of superior quality is mined, which will come into competition with coal on which connecting carriers get a longer haul, is no reason for discrimination against such railroad by the commission in adjusting division of through rate. An order for division of rates, based in part on the comparison with what has been agreed to between roads carrying from other coal fields with a less costly haul, is erroneous. It is held that the defendant railroads cannot complain of an adjustment of through rates from different coal fields which requires them to haul coal between the same stations at different rates dependent on the field from which the coal comes, as unlawful discrimination, and seek to justify the same condition operating in their favor affecting the plaintiff railroad. The consideration of the relative number of cars furnished on through hauls of coal by the respective carriers in fixing a division of rates is error; that being a separate matter for adjustment, either by the commission or the railroads. Since the power to make rates and fix division of rates has been lodged in commissions, both state and federal, carriers cannot retire from a rate or division so fixed, leaving shippers on their lines without opportunity to compete; their remedy lies in appeal to the commission and courts. Section 32 of the Colorado Public Utilities Commission act, providing that "upon hearing, the Supreme Court shall enter judgment, either affirming, setting aside, or modifying the order of decision of the commission," does not authorize such court to modify an order of the commission by fixing a division of rates between carriers; that power belonging to the commission.—*Denver & Salt Lake (Colo.)*, 171 Pac. 74. Decided February 4, 1918.

## Equipment and Supplies

### Standard Cars and Locomotives Delivered

A total of 1,052 of the new standard cars were delivered by the car builders during the week ending November 16, as follows:

Road	Number	Type	Manufacturer	Total accepted for given roads
A. C. L.....	146	50 T. Comp. Gond.	Haskell & Barker..	146
C. C. & O.....	73	50 T. S. Hopper....	Press. Steel C. Co.	250
C. C. & O.....	76	55 T. S. Hopper....	Std. Steel Car Co.	76
C. & N. W.....	93	40 T. D. S. Box....	A. C. & F. Co....	1,065
C. & N. W.....	80	50 T. Comp. Gond.	A. C. & F. Co....	257
C. & N. W.....	16	50 T. Comp. Gond.	Haskell & Barker..	500
C. C. C. & St. L.	77	55 T. S. Hopper....	A. C. & F. Co....	98
C. C. C. & St. L.	186	55 T. S. Hopper....	Pullman Car Co...	186
C. C. C. & St. L.	74	55 T. S. Hopper....	Ralston Co. ....	200
C. C. C. & St. L.	88	55 T. S. Hopper....	Std. Steel Car Co.	200
N. Y. C.....	108	50 T. Comp. Gond.	Press. Steel C. Co.	198
N. Y. C.....	35	50 T. Comp. Gond.	A. C. & F. Co....	35

Total ..... 1,052

Locomotives delivered during the week to railroads under federal control totaled 38, as follows:

Works	Road	Number	Type	Individual Engine No.
American ..	Mich. Cent. ....	14	USRA Mikado .....	7976-89
	N. Y. C.....	8	USRA 8-W. Switch..	429-4 & 6 & 8
	Erie .....	1	USRA Mikado .....	3215
	Wabash .....	3	USRA Mikado .....	2201-4
	E. P. & S. W....	1	USRA Mikado .....	390
	Penna. L. W....	2	USRA 6-W. Switch..	7011 & 7030
	C. of N. J.....	2	USRA 6-W. Switch..	102-3
	Virginian .....	1	Mallet .....	809
	Hock. Valley....	1	Mallet .....	220
	Total .....	33		
Lima .....	N. Y. C.....	1	Mohawk .....	2684
	N. Y. C.....	2	USRA Mikado .....	5150-51
	Total .....	3		
Baldwin ...	Southern .....	1	Mallet .....	4011
	C. C. C. & St. L.	1	USRA Mikado .....	6104
	Total .....	2		
		Grand total..	38	

The latest available figures indicate that a total of 514 of the United States Railroad Administration's order of 1,430 standard locomotives have been completed, consisting of 93 out of 570 from the Baldwin Locomotive Works, 409 out of 800 from the American Locomotive Company, and 12 out of 60 from the Lima Locomotive Works. These figures do not include the recent order of 500 locomotives to American Locomotive and 100 to Lima.

### Pershing Car and Locomotive Orders Held Up

A despatch from Tours, France, the headquarters of the Railway Service Expeditionary Forces, announces that 43 construction projects, including a deepwater dock for 20 ships, terminals, warehouse and railroads have been cancelled, and orders for 2,000 locomotives, 61,000 freight cars and hundreds of cranes, tugs, barges and derricks have been recalled, while orders for cars and locomotives are recalled as far as the Expeditionary Forces are concerned. Only the recent order for 40,000 freight cars divided between 17 car building companies in the United States, reported in the *Railway Age* of November 1, and orders for 1,500 locomotives placed with Baldwin have been definitely cancelled as yet as it is hoped some arrangement can be made for the disposition of the remaining outstanding orders to the French government or the French railways.

The locomotive and car orders for the forces overseas totaled 2,510 and 70,000, respectively. In the case of the locomotives, 500 were ordered in July and the Baldwin Locomotive Works left off producing United States standard locomotives to work on "Pershing" locomotives exclusively. The order was soon supplemented by 10 more for replacements and then by 500, making a total of 1,010, of which some 750 have now been delivered. The 1,500 which are cancelled were covered in two orders placed in September. Similarly as to the cars, two orders were placed in July for 10,000 and 20,000 respectively followed by 40,000 more in September. The latter 40,000 are the ones mentioned as cancelled.

## Supply Trade News

**The Grip Nut Company**, Railway Exchange building, Chicago, announces its removal to 943 Peoples Gas building.

**J. D. Apgar**, formerly with Vandyck Churchill Company, in New York territory, is now associated with the Machine Tool Engineering Company, New York City.

**The Union Switch & Signal Company** announces that on and after December 1 its New York office will be located on the 21st floor of the City Investing building, 165 Broadway.

**The Q and C Company of Canada, Limited**, has been incorporated with Charles F. Quincy, president, and Frank F. Kister, secretary and treasurer. This company will manufacture and sell in Canada railway devices controlled by the Q and C Company.

**Charles S. Chadwick**, secretary and treasurer of the Eppinger & Russell Company, has been appointed general manager, with office at New York, to succeed Jesse Eppinger, deceased. Mr. Eppinger, who died on October 24, had been with the firm for over 35 years, and for a number of years had held the position of general manager.

**The American Manganese Steel Company**, San Francisco, Cal., has let a contract to H. P. Hoyt & Co., San Francisco, for the construction of a new plant at Oakland, which will be of structural steel construction, 240 ft. by 180 ft., with an 80-ft. crane span and 50-ft. side bays. The approximate cost of the main building, without equipment, is \$100,000.

## Trade Publications

**TANKS.**—A list of the storage, pressure, car tanks, etc., for sale by the Walter A. Zelnicker Supply Company, St. Louis, Mo., with the dimensions and weight of each, is published in bulletin No. 252.

**DISCOUNT GUIDE.**—George B. Carpenter & Co., Chicago, Ill., have issued a 66-page discount guide to catalogue No. 110, dated September, 1918. This constitutes a complete statement of discounts and price revisions, tabulated by page numbers of the general catalogue and covers the complete line of railroad and construction equipment handled by that company.

**TOOL HOLDERS.**—Tool holders manufactured by the Gisholt Machine Company, Madison, Wis., for use in turret and engine lathes equipped with turret tool posts, are illustrated and described in a six-page folder issued by that company. Complete dimensions, sizes and prices are given. These holders were designed to make possible the use of worn down tools to the last inch or so, a fact which is of importance with the prevailing price of tool steel.

**LOCOMOTIVE CONDULETS.**—The Crouse-Hinds Company, Syracuse, N. Y., has designed several new condulets for use in electric headlight wiring on steam locomotives, which are listed and illustrated in bulletin No. 1000-1. A plan view and side elevation of a locomotive and tender wired with conduit and condulets, and sectional views of the installation are shown in the catalogue, with a list of the materials required. These drawings are complete insofar as it is possible to make them and they should be of value to anyone charged with the work of installing electric headlights.

**FEEDWATER FILTER.**—A multiple filtration feedwater filter and grease extractor designed for power plant work and manufactured by the Lagonda Manufacturing Company, Springfield, Ill., is described in some detail in Catalogue R, issued by that company. This is a compact, self-contained unit and the multiple filtration assures thorough cleaning by filtering and refiltering the water. The filtering element may be easily cleaned and used repeatedly. The catalogue contains a number of illustrations showing the construction of the filter and several installations, as well as a table of dimensions.

## Financial and Construction

### Railway Financial News

**CHICAGO, ROCK ISLAND & PACIFIC.**—Judge Julius M. Mayer, of the U. S. District Court, has made an order approving the final administration accounts of Walter C. Noyes, who was appointed on January 18, 1915, receiver of this company in litigation instituted by the Central Trust Company of New York as trustee. Judge Mayer directs that the receiver be discharged after he has distributed a balance of \$51,783.15 in his possession. Some small claims are to be settled and what is left will be applied toward the deficiency judgment held by the Central Union Trust Company of New York for \$68,273,372, and will be distributed among the holders of bonds of the par value of \$71,353,000.

**CINCINNATI, FINDLAY & FORT WAYNE.**—This road was sold at foreclosure on November 18 to the bondholders' committee for the upset price of \$200,000.

**STOCKTON TERMINAL & EASTERN.**—This property has been sold at foreclosure to E. F. Davis, president of the First National Bank of Oakdale, for \$65,000. The company, operating 19 miles of line between Stockton, Cal., and Bellota, has been in the hands of receivers since June 11, 1917.

### Railway Construction

**PERE MARQUETTE.**—This company is building a new yard at New Buffalo, Mich., the plans for which include about 19 miles of track; a 16-stall enginehouse, with a 90-ft. turntable; a machine shop building, and a 250-ton Roberts & Schaefer coaling station.

**UNION PACIFIC.**—Work is in progress on a one-story addition which this company is making to its present machine shop at Omaha, Neb. The building will be used by the motive power department for assembling and erecting. The estimated cost, including additional machinery, is \$500,000.

### Court Order Restrains Acceptance of Standard Cars

A temporary restraining order was issued Monday in the United States District Court, at Toledo, against William G. McAdoo, as Director General of Railroads, instructing the receiver of the Toledo, St. Louis & Western Railroad not to accept cars, sign contracts or to do anything that would jeopardize or compromise the interests of the stockholders of the road. A hearing on the injunction was set for December 16.

The case in question is one in which the stockholders' protective committee of the Toledo, St. Louis & Western seeks to prevent Mr. McAdoo from compelling the road to accept 1,250 freight cars, which the committee asserts the road does not now need and for which the committee declares the road would have to pay an exorbitant price.

**FRANCE PROJECTS AERIAL LINES.**—The French Government is contemplating the creation of about twenty aerial lines connecting Paris with the chief towns of France and the great foreign centers.

**ECONOMIC PROGRAM IN SPAIN.**—In connection with the renewal of the charter of the Bank of Spain, which expires in 1921, a commission has been appointed by the Spanish Ministry of Finance to draft a new bill and at the same time to work out a comprehensive economic program, which includes (1) the purchase of the railroads and their operation by the State; (2) the utilization of the waterfalls for motive power; (3) a special mining law providing for the participation of the State in "extra profits"; (4) the creation of a national industrial bank; and (5) the rebuilding of the nation's industries.—*Commerce Reports.*



## Railway Officers

### Railroad Administration

#### Central

**H. G. Jordan** has been appointed general inspector of the Fire, Loss and Protection Section of the Railroad Administration, with jurisdiction over the Northwestern and Central Western regions, with headquarters at Chicago.

The Division of Public Service and Accounting has appointed seven supervising cost accountants, assigned to seven districts as follows: New York, **J. J. Decent**; Pittsburgh, Pa., **E. L. Staats**; Columbus, O., **E. J. Huston**; Chicago, **C. C. Peffer**; Chicago, **W. J. Babcock**; St. Louis, Mo., **G. O. Baird**, Seattle, Wash., **M. H. Reasoner**.

#### Regional

**John E. Mahaney** has been appointed supervisor of stores of the Northwestern region, with headquarters at Chicago.

**Edmund K. Fleming** has been appointed supervisor loss and damage for the Central Western Region, with headquarters at Chicago.

**J. L. Haugh**, engineer of capital expenditures in the office of the Northwestern regional director, has been appointed engineering assistant to the regional director, with headquarters at Chicago, to succeed **Ralph Budd**. Mr. Haugh has been discharging the duties of engineering assistant since Mr. Budd's resignation some months ago, to become chairman of the board of directors of the Chicago, Burlington & Quincy. **C. E. Cox**, of the valuation department of the Chicago, Milwaukee & St. Paul, has been appointed engineer of capital expenditures in the office of the engineering assistant, to succeed Mr. Haugh.

#### Federal and General Managers

The authority of **D. C. Douglass**, federal manager of the Maine Central, with office at Portland, Maine, has been extended over the Portland Terminal Company.

The Rock Island-Frisco Terminal at St. Louis, Mo., has been placed under federal control and assigned to the jurisdiction of Federal Manager **L. Kramer**, St. Louis.

**A. G. Whittington**, general manager of the Texas & Pacific, the St. Louis Southwestern of Texas, the International & Great Northern (excluding the line from Spring to Ft. Worth and the Madisonville branch), the Trinity branch of the Missouri, Kansas & Texas, of Texas, the Beaumont & Great Northern, the Galveston, Houston & Henderson, the Houston & Brazos Valley, the Trans-Mississippi Terminal and the Weatherford, Mineral Wells & Northwestern, with headquarters at Houston, Tex., has had the Dallas Terminal Railroad & Union Depot included in his jurisdiction.

#### Operating

**Ralph G. Richardson** has been appointed superintendent of station service on the Long Island, with office at Jamaica, N. Y., vice **R. W. Farrell**, who has been assigned to duty on another road in the Allegheny Region.

**W. M. Thurber**, trainmaster of the Chicago, Milwaukee & St. Paul, with office at Dubuque, Ia., has been promoted to superintendent of the Dubuque division, succeeding **M. J. Flanigan**, transferred to the Hastings and Dakota division, with headquarters at Montevideo, Minn., vice **F. M. Melin**, resigned; **C. H. Buford**, superintendent of the Wisconsin Valley division, with headquarters at Wausau, Wis., has been transferred to the Superior division, with headquarters at Greenbay, Wis., succeeding **W. E. Tyler**, assigned to other duties; **P. H. Nee**, trainmaster, at Montevideo, Minn., has been promoted to superintendent, with office at Wausau, Wis., succeeding Mr. Buford. **H. L. Riggs**, assistant super-

intendent of the Superior division, has been appointed trainmaster to succeed Mr. Nee, and **H. A. Hargraves** has been appointed trainmaster with office at Dubuque, succeeding Mr. Thurber.

#### Financial, Legal and Accounting

**H. F. Smith**, local treasurer of the San Antonio, Uvalde & Gulf, has been appointed acting federal treasurer, with headquarters at San Antonio, Texas, succeeding **H. P. McMillan**, resigned.

**Charles S. Smith**, assistant auditor of the Virginian Railroad, with offices at Norfolk, Va., has been appointed acting federal auditor, vice **W. C. Everett**, resigned to accept service with the corporate company.

**Guy V. Shoup** has been appointed general solicitor of the Southern Pacific, lines south of Ashland, the Western Pacific, the Tidewater Southern and the Deep Creek Railroad, with headquarters at San Francisco, Cal.

**J. H. Reddy** has been appointed auditor of disbursements of the Delaware & Hudson; the Greenwich & Johnsonville; the Schoharie Valley; the Wilkes-Barre Connecting; the Champlain Transportation Line, and the Lake George Steamboat Line, with office at Albany, N. Y., vice **A. J. Gies**, resigned to accept service elsewhere.

**M. E. McKirahan** has been appointed freight claim agent, having general charge of loss and damage freight claims and the prevention of causes of such claims, of the Southern Pacific (lines south of Ashland, Ore.), the Western Pacific, the Tidewater Southern and the Deep Creek, with headquarters at San Francisco, Cal. **R. G. Fagan** and **W. F. Whiteman** have been appointed assistant freight claim agents of the same roads, with office at San Francisco.

**D. R. Sessions** has been appointed claims attorney, **D. V. Cowden**, tax attorney, and **Wm. M. Singer**, contract attorney, of the Southern Pacific (lines south of Ashland), the Western Pacific, the Tidewater Southern and the Deep Creek, all with headquarters at San Francisco, Cal. **Bagley & Ashton** have been appointed local counsel for roads of this jurisdiction within the state of Utah, with headquarters at Salt Lake City, Utah. All other local counsel will, unless otherwise arranged, continue to act for their respective roads as heretofore, reporting to General Solicitor **Guy V. Shoup**.

#### Traffic

**J. W. Hunter** has been appointed division freight agent of the Southern Railroad Lines, with office at Mobile, Ala., vice **J. H. Andrews**, transferred.

**T. D. Guthrie** has been appointed assistant general freight agent of the Georgia Southern & Florida and the Hawkinsville & Florida Southern, with headquarters at Macon, Ga., vice **G. H. Wilcox**, resigned.

**L. P. Green** has been appointed superintendent of safety of the Minneapolis, St. Paul & Sault Ste. Marie; the Duluth, South Shore & Atlantic; the Mineral Range; the Lake Superior Terminal & Transfer, and the Copper Range Railroad, with headquarters at Minneapolis, Minn.

#### Engineering and Rolling Stock

**F. H. Clark**, general superintendent maintenance of equipment of the Baltimore & Ohio, with office at Baltimore, Md., has resigned.

**A. J. Lewis**, general foreman of the Missouri, Kansas & Texas, of Texas, has been appointed shop superintendent at Denison, Texas.

**A. Kearney**, assistant superintendent of motive power of the Norfolk & Western, with office at Roanoke, Va., has been appointed superintendent of motive power, with office at Roanoke, vice **W. H. Lewis**, retired.

**R. W. Burnett**, shop superintendent of the Missouri, Kansas & Texas Railway of Texas, at Denison, Texas, has been appointed mechanical superintendent of the Missouri, Kansas & Texas and the other roads under the jurisdiction

of **J. S. Pyeatt** as federal manager. His headquarters are at Denison.

The authority of **H. F. Greenwood**, superintendent of shops of the Norfolk & Western, with office at Roanoke, Va., has been extended to include all departments at East Roanoke shops, and **J. J. Barry**, master mechanic, at Portsmouth, O., has been appointed general master mechanic, with office at Roanoke, Va.

**Harry C. Oviatt**, who has been appointed superintendent of motive power of the New York, New Haven & Hartford, the Central New England, the New York Connecting, the Wood River Branch, the Union Freight Railroad and the Narragansett Pier Railroad, with headquarters at New Haven, Conn., as has already been announced in these columns, was born in Milford, Conn., on December 5, 1871, and received his education in the grammar schools. His entire railroad career has been with the New York, New Haven & Hartford, he having entered its employ as a fireman in May, 1889, later being made an engineman. In 1900 he was transferred to the mechanical department as an air brake inspector. Three years later he was appointed foreman of engines, and in August, 1904, was promoted to master mechanic. He subsequently served as general inspector of the mechanical department, and in May, 1913, was appointed assistant mechanical superintendent. The following September, he was appointed superintendent of the Old Colony division, and in November, 1914, was selected to organize and supervise the bureau of fuel economy on the same road, with the title of assistant mechanical superintendent. He subsequently served as superintendent, first of the Shore Line division, and later of the New Haven division, until May, 1917, when he was appointed general superintendent, of the lines west. From September, 1917, to May, 1918, he was temporarily in the employ of the International Shipbuilding Corporation, engaged in government work at Hog Island as transportation manager, and from May, 1918, until his recent appointment as superintendent of motive power, he was superintendent on the New Haven with office at Danbury.

#### Purchasing

The authority of **J. A. Turner**, purchasing agent of the Mobile & Ohio, at Mobile, Ala., has been extended to include the Gulf, Mobile & Northern, and **H. G. Reiser**, purchasing agent and superintendent of telegraph of the Gulf, Mobile & Northern, with office at Mobile, Ala., has been appointed assistant purchasing agent.

### Corporate

#### Executive, Financial, Legal and Accounting

**A. L. Ungewitter**, assistant to the receiver of the Toledo, St. Louis & Western, has been appointed treasurer and assistant to president and receiver of that road; assistant to the president of the Detroit & Toledo Shore Line, and assistant to president and treasurer of the Toledo Terminal, with office at Toledo, Ohio. **C. S. Sikes**, vice-president of the Pere Marquette, with office at Detroit, Mich., also has been appointed vice-president of the Toledo Terminal Railroad. **Bryan Thomas**, heretofore federal auditor of the Toledo Terminal, has been appointed auditor and secretary of that road, and auditor and assistant secretary of the

Toledo, St. Louis & Western and the Detroit & Toledo Shore Line, with headquarters at Toledo.

#### Operating

**H. C. Taylor** has been appointed car service agent of the Ontario district of the Canadian Pacific, with office at Toronto, Ont., in place of **G. T. Coleman**, transferred.

**William Allan Mather**, whose appointment as general superintendent of the Saskatchewan district of the Canadian Pacific, with headquarters at Moose Jaw, Sask., has already been announced in these columns, was born as Oshwa, Ont., on September 12, 1885. He graduated from the McGill University in 1908 and entered railway service in the construction department of the Canadian Pacific in May, 1903. From January, 1911, to March, 1912, he was resident engineer at Winnipeg, and from the latter date to January, 1915, he was superintendent at Kenora, Ont. He was then transferred to Medicine Hat, Alt., as superintendent, where he remained for six months, when he was promoted to assistant general superintendent of the British Columbia district at Vancouver, B. C. He held the latter position until his recent appointment as general superintendent of the Saskatchewan district.

#### Obituary

**W. A. Cowan**, general superintendent, Western Lines, of the Canadian Government Railways, with office at Cochrane, Ont., died on November 17.

**John McManamy**, general supervisor of equipment of the mechanical department of the Railroad Administration, and a brother of Frank McManamy, assistant director, Division of Operation, died suddenly at his home at Grand Rapids, Mich., on November 13, of pneumonia.

**Charles John Augustus Morris**, of the firm of Morris, Shepard & Dougherty, railroad contractors, at St. Paul, Minn., died in that city on October 27, aged 68 years. From May, 1898, to 1900, Mr. Morris was chief engineer of the St. Paul & Duluth, now a part of the Northern Pacific. His first engineering work was with the St. Paul & Pacific on the location and construction of that line from Barnesville, Minn., to St. Vincent in 1871, and the construction of the railroad bridge over the Mississippi river at St. Cloud, Minn., in the same year.

#### Charles R. Van Hise

President **Charles R. Van Hise**, of the University of Wisconsin, died at a hospital in Milwaukee, Wis., on November 19, from pneumonia meningitis following treatment for a nasal infection. Dr. Van Hise was born in Fulton, Wis., on May 29, 1857. Following his graduation from the University of Wisconsin in 1879, he joined its staff as an instructor of mineralogy and geology. He became professor in these sciences in 1886, and in 1903 was elected president of the University. Although the greater part of his working life was passed at Madison in connection with his university work, Dr. Van Hise found time, especially during the summer vacations, to perform much valuable work for the government, and as his reputation and authority grew he was able also to accept commissions from large mining interests for investigation into mining fields in many parts of the world.

His special work for his state and government was performed mainly as a member of the Wisconsin Geological and Natural History Survey, the United States Geological Survey and the Wisconsin Forestry Board.

As a political economist, Dr. Van Hise took great interest in controversies between capital and labor. In 1912 he was appointed chairman of the board of arbitration in the wage controversy between the Eastern Railroads and the Brotherhood of Locomotive Engineers.

Two years later he was sent by the government to Panama to report on the earth slides that had so greatly impeded the work of canal construction. At the entrance of this country into the war in 1917, he was appointed by President Wilson a member of the Advisory Board to assist Herbert Hoover.